THE IRON AGE

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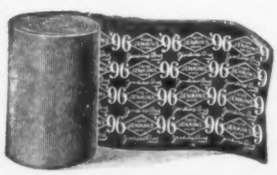
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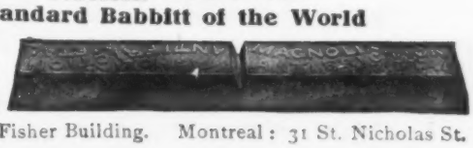
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THE IRON AGE

New York, Thursday, January 28, 1909.

COAL BRIQUETTING.

With Special Reference to the Briquetting Machine Built and Used by the Standard Fuel Company, Birmingham, Ala.

BY R. M. HALE, CHICAGO.

Some years ago while superintendent of the briquetting plant of the South Chicago Works of the Illinois Steel Company, the writer prepared an article on the briquetting of iron flue dust, which was published in *The Iron Age*, December 11, 1902. In this article it was stated that the cardinal principles of successful briquetting are thorough amalgamation of the bonding material with the flue dust, thorough pugging with pressure, additional pressure after the material has been forced into the molds, and slow but thorough drying. Additional experience and study have more fully proved the correctness of these statements. This article does not discuss flue dust briquetting, but is confined to the briquetting of coals. The mechanical principles involved are much the same, but the character of the bonding material and properly incorporating it with the coal, call for thorough study.

Coating.

Theoretically, the particles of coal should be entirely covered with a thin film of binder and so close together that there will be no voids between them. Practically, this is almost impossible to accomplish. Often the voids are filled with binder, which increases the manufacturing cost sometimes prohibitively and is often a detriment to the product. Even if the binder adds heat value, this excess is expensive, and if it is inorganic, it adds to the ash. An effort is therefore made to fill these voids with smaller particles of coal. Pressure also tends to compact the mass and thus reduce the voids. Bulletin No. 343, issued by the United States Geological Survey, elaborately discusses this subject and the kind of binder to use, and gives comprehensive results of a large number of experiments.

Methods.

Thorough pugging with pressure is the best method of accomplishing the amalgamation. Undoubtedly it is the best for such raw materials as flue dust, iron and copper ores, and substances of that nature. At the South Chicago plant this was accomplished by a Chilian mill forming a part of the briquetting machine, but so far as the writer is aware, no coal briquetting plant employs this method, probably because it crushes the coal too fine.

James E. Mills says in the bulletin above referred to: "Fine crushing of the coal slack gives the briquet a smoother surface that is more resistant to the weather; but this increase in the quality of the briquet is usually obtained at too great a cost, owing to the additional binder required. . . . Fine crushing also makes the briquet harder to ignite." The main function of the binder is to hold the briquet together, concerning which he says: "It is interesting to note that with all binders the coherence in the briquet at first increases, but slowly with increase in the proportion of binder. Then suddenly the coherence increases very rapidly and the briquets become strong. Then when an excess of binder is added the increase in strength is only slight. . . . After the grains have been well coated there is little further gain in strength with the use of additional binder.'

If the exact amount of binder to properly coat every particle of coal ground to a uniform size were mixed with the coal in the ordinary paddle mixer it is doubtful if every particle would receive its share of the coating, hence the practice is to put in an excess of binder; but if they were properly mixed under pressure the coating of binder would have a tendency to spread more evenly over all the particles, and notwithstanding the fact that more binder is theoretically required for finer grinding of coal, in actual practice less binder will go further if mixed and thoroughly pugged under pressure.

Ignition.

No argument is necessary to prove that the finely ground briquet is harder to ignite. If the briquets are burned under a boiler where the draft is heavy, this difficulty amounts to nothing, and if the briquets are used for domestic purposes, they can be burned under similar conditions to anthracite. Besides the finely ground briquet makes a better appearance and "gives a smoother surface that is more resistant to the weather." These advantages when considered with the fact that the same amount of binder will go further when mixed properly with pugging and pressure, are in the writer's opinion and practice, sufficient to offset their disadvantages.

Briquetting Machines.

Considering the third point—*i. e.*, additional pressure after the material has been forced into the molds—involves the briquetting machine. Quite a few machines of different types in use in this country are described by E. W. Parker in a paper read before the American Institute of Mining Engineers, at Toronto, July, 1907, and now published as "Contributions to Economic Geology, 1906," by the United States Geological Survey. These machines can be divided roughly into three classes: Those having cups in the periphery of two adjacent tangential wheels, such as the ordinary Belgian type, and of which there are several modifications; those having external plungers, which enter and leave the mold during each stroke, and those in which the plunger forms an integral part of the mold and never leaves it.

The machine must be made to turn out a large tonnage of small briquets in a short time and to turn them out of sufficient hardness to withstand handling by ordinary mechanical means, with only one passage through the machine. Wear and tear on a machine working such gritty materials as iron ores, flue dusts and coals is naturally large and should be reduced to a minimum so that the machine will be capable of continuous operation the maximum time with the minimum expense. With these conditions in view the writer designed the machine described later.

In the external plunger type machine, where the plungers enter and entirely leave the mold at each stroke, it is necessary to stop the molds in exact position for the plungers to enter and to allow some clearance to cover possible inaccuracies in movement. Even where the molds themselves are not movable, clearance is necessary to prevent the plungers from wearing the edges of the molds. This clearance largely destroys the effect of direct pressure on the material, by forcing some of it through the clearance space, and this defect is aggravated as the clearance is increased by wear, making the product more and more inferior. In the Belgian type machine it is difficult to tell what effective pressure is being applied to the briquet, and it is almost impossible to regulate. The amount of waste material which passes through the machine and has to be worked over again is an added objection.

The Hale Machine.

These considerations led to the adoption of the internal type plunger machine, where the plunger never

leaves the mold cavity and forms the bottom of the cavity itself. This permits a closer fit and avoids having to allow clearance for the plunger to enter the mold. It also reduces the wear on the molds materially and does not tend to increase the fault as the external plungers do. The molds must be turned over to eject the finished briquet; hence they are placed in the periphery of a large circular drum, and the plungers project inwardly, leaving the outer ends open to receive the raw material. The plungers have springs around their rearward extensions to hold them in the bottom of the cavities.

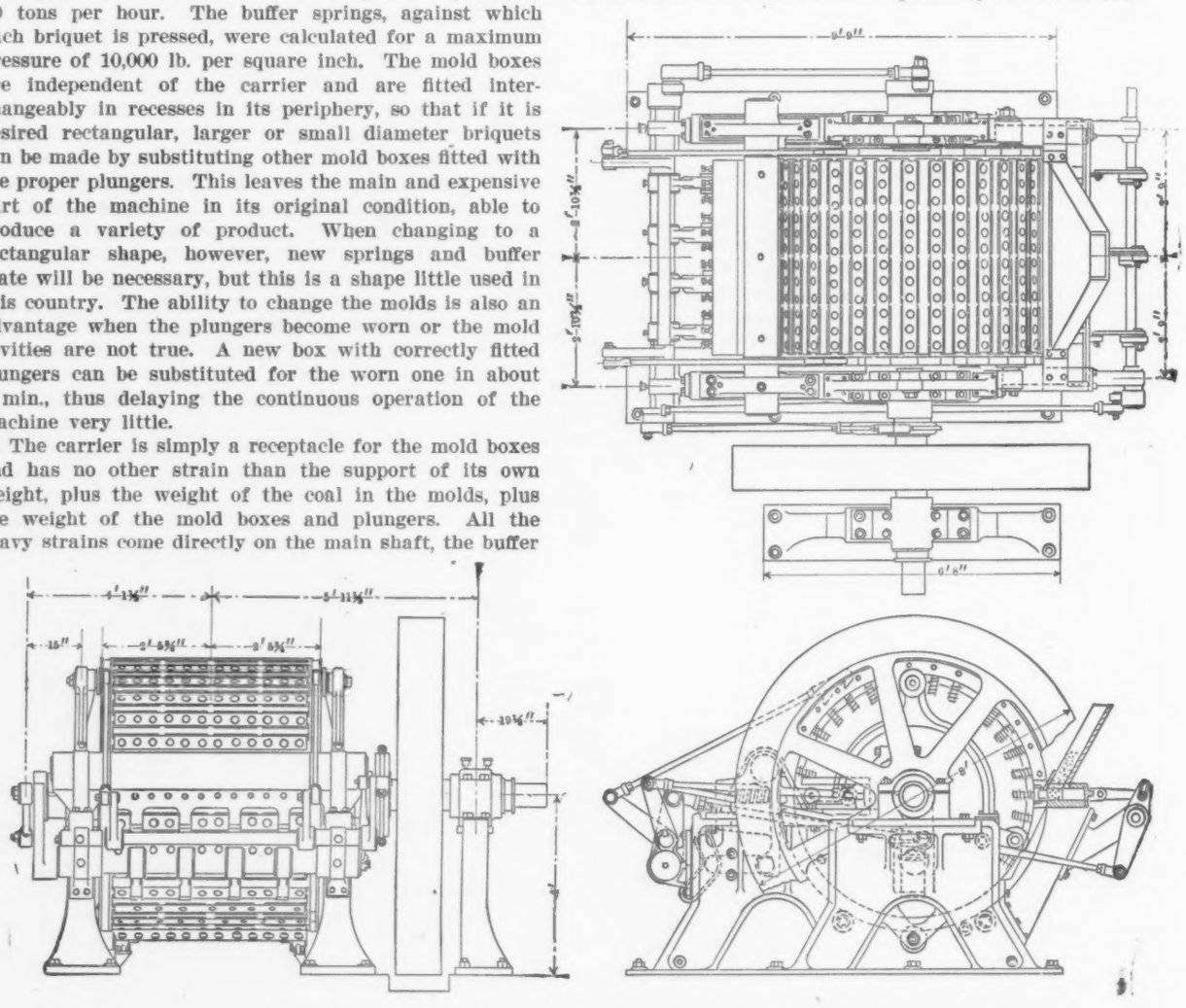
The mold carrier contains 12 molds across its face in each of 32 mold boxes around its circumference for briquets 2¼ in. in diameter, weighing about 6 oz. each. The speed of the drum is such as to give a capacity of 10 tons per hour. The buffer springs, against which each briquet is pressed, were calculated for a maximum pressure of 10,000 lb. per square inch. The mold boxes are independent of the carrier and are fitted interchangeably in recesses in its periphery, so that if it is desired rectangular, larger or small diameter briquets can be made by substituting other mold boxes fitted with the proper plungers. This leaves the main and expensive part of the machine in its original condition, able to produce a variety of product. When changing to a rectangular shape, however, new springs and buffer plate will be necessary, but this is a shape little used in this country. The ability to change the molds is also an advantage when the plungers become worn or the mold cavities are not true. A new box with correctly fitted plungers can be substituted for the worn one in about 5 min., thus delaying the continuous operation of the machine very little.

The carrier is simply a receptacle for the mold boxes and has no other strain than the support of its own weight, plus the weight of the coal in the molds, plus the weight of the mold boxes and plungers. All the heavy strains come directly on the main shaft, the buffer shaft and the cam shaft. To index the carrier between operations two narrow tooth rings are bolted to the carrier, one on each side, and a dog engages each. Each dog is fastened to a rod by a small pin, which will shear when any undue strain comes upon it and prevent more serious breakage of the machine. These rods are connected to levers, keyed upon an independent rock shaft, mounted in brackets on the forward ends of the pedestals. Motion is imparted to this shaft through a lever operated by eccentric rods from an eccentric on the main shaft, outside the carrier. A nice and accurate adjustment as to timing can be effected by these means, and the apparatus is so arranged that each stroke is divided into two periods—0.4 for the movement of the carrier and 0.6 for the compression to take place. The carrier is supported on eight rollers mounted in bearings supported from the main pedestals. Six are below the horizontal center line and bear against the outer periphery; two are above the horizontal center line and bear against the inner periphery, and to prevent lifting of the carrier when the rotating motion begins, four additional rollers are placed against the inner periphery below the horizontal center line; these rollers do not carry any weight. Flanges on the rollers prevent lateral movement. The roller pins have a tapered end fitting into the bearings on the pedestals, and the straight portion through the rollers proper is turned eccentric with the tapered portion. This permits adjusting the load on each roller and always insuring that each will carry its share. The shaft through the center of the carrier carries all the load and is the prime mover of the machine. To give all possible room between the shaft and the inner periphery of the carrier for the operation of the eccentrics and their connections, the main shaft is of nickel steel, thereby materially reducing its diameter.

The crosshead engaging the 12 plungers is of I-beam section, and is actuated at three points by eccentrics connected to the cross head by ball and socket pins having one end treaded and adjustable in a boss on the eccentrics. To maintain the cross head in a horizontal position, projections are cast on each side to carry rollers, which travel on angle iron tracks bolted to the pedestals. Above these and just clearing the rollers are bolted ordinary tee irons to prevent buckling.

A somewhat similar arrangement is provided for ejecting the finished briquets at the bottom of the drum. This cross head is much lighter, and is operated by two eccentrics. As it works vertically it has no rollers, but is loosely guided between two vertical angle irons bolted to each pedestal.

Most of the working parts having the heaviest frictional loads are mounted and driven from the one shaft entirely within the carrier, and so placed that they do not come in contact with the gritty material to be briquetted. While the entire upper half of the mold carrier is filled with loosely pressed material on its way to be compressed, all the spaces are filled in and prevent any of it from falling through on the working parts.



Elevations and Plan of the Hale Briquetting Machine Controlled by the Standard Fuel Company, Birmingham, Ala.

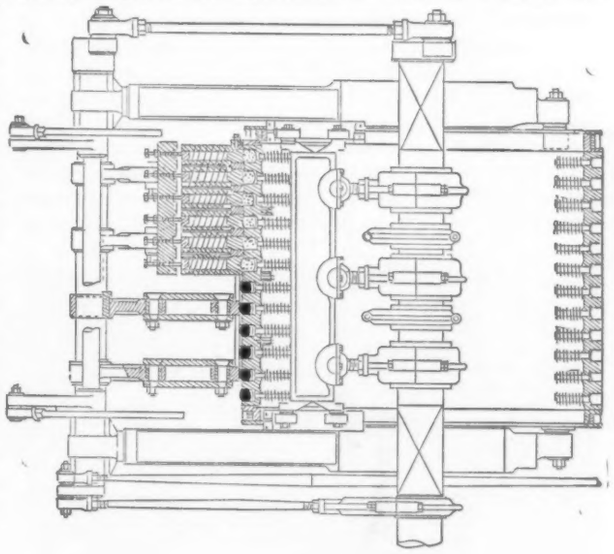
The outer ends of the molds being open the material is compressed against the before-mentioned buffer springs. These springs are carried in a heavy casting called the buffer plate, pivoted on a shaft mounted in bearings supported from the pedestals, just forward of the carrier and above the horizontal center line. The ends of the briquets are convex and segments of spheres, to insure better circulation of air in the fire; they are formed in a concavity in a movable plug in the buffer plate, and hence project beyond the periphery of the carrier. When the carrier begins to move, to get these convex ends by without breaking, the buffer plate is given an oscillating motion by means of four cams. These cams are keyed to a shaft, supported in brackets from the forward ends of the pedestals and just below the rock shaft operating the ratchet mechanisms. Motion is imparted to the cam shaft by a heavy lever keyed on one end and driven by a 2-in. cold rolled steel connecting rod from a crank on the end of the main shaft. Cams were chosen as the best operating means to get the buffer plate entirely out of the way the moment the compression cross head ceases to force the plungers outwardly and before the carrier begins its next movement. Also to keep it away till the carrier had ceased its movement, and then to bring it quickly against its face and hold it there during the period of compression.

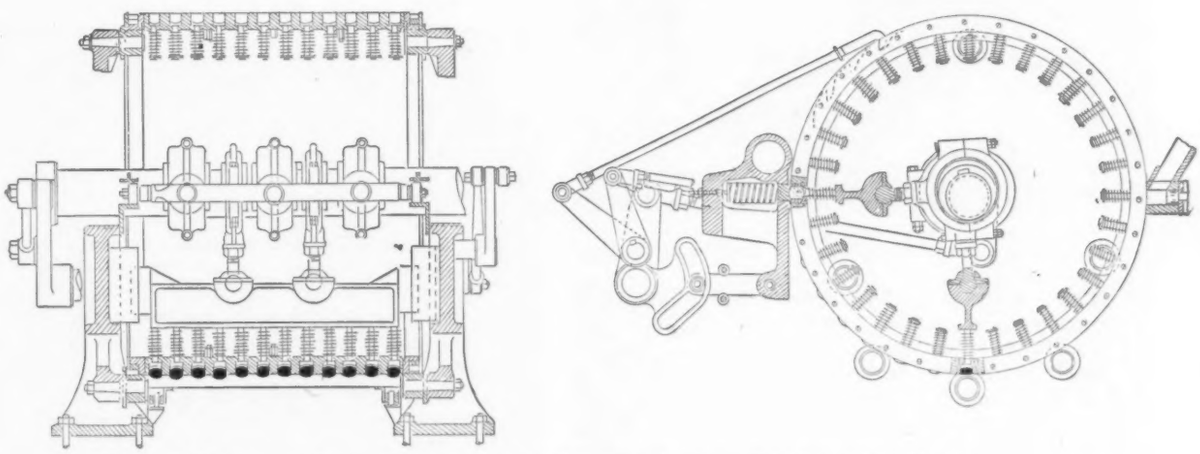
The buffer springs are held in place by small bolts passing through the top plate. Square holes are cored in the under side of the plate into which are fitted square nuts. The bolts pass freely through the plate not being threaded therein, and a lock nut on the top of the plate holds the bolts in any desired position. If some hard substance should get into the mold and be apt to break the machine the springs will yield before the danger point is reached and will continue to do so till they come metal to metal, at which time the threads on the square nut on the under side of the top plate will strip and allow the springs to drop out. These bolts and a few mold boxes are all the spare parts necessary to carry. Just above the center line on the buffer plate are two guide rollers to insure proper alignment of the molds, while on the center line are two stop pins to prevent the carrier moving too far. Each briquet has its individual spring, and its action is independent of all the others, thus assuring a maximum output and a uniformity of product.

Here, again, it will be noted that the parts having a heavy frictional load are outside the reach of direct contact with any gritty material. The absence of gearing is another desirable point.

Material is fed into the mold cavities opposite the point of compression as far as possible from the working parts. It is delivered through an inclined spout from the mixer to a large rectangular box extending across the face of the carrier. In the rear of this box are openings, through which project plungers fastened to a sliding cross head extending across the machine. This cross head is operated by three levers attached to a rock shaft mounted in brackets supported from the rearward ends of the pedestals. Oscillatory motion is given to this shaft by connection to the same eccentric which drives the ratchet mechanism. These plungers are larger than the mold cavities and their travel is adjustable, as it is not their function to enter the molds or to give any great amount of pressure to the material. They are intended to pass through the feed box, which is kept constantly filled, and force an even amount of material into each mold under just sufficient pressure to insure its not falling out before it reaches the point of compression. Any excess of material is cut off by the sharp knife edge of the upper portion of the feed box.

Adjustments are provided in all rods, eccentrics and connections. The entire machine is mounted on two heavy pedestals, entirely above ground, and every part is easily accessible for adjustment or repairs. Lubrication is provided at every bearing point by holes drilled to the center of each bearing and grease forced therein by compression. The grease then has a tendency to work to the outside of the bearing and forms a collar to prevent dirt from entering and cutting the surfaces. A large flywheel is mounted on the main shaft, just beyond one of the large pedestals, the centrifugal force of whose rim is sufficient to carry the machine over its heaviest working points. An outboard bearing is provided beyond the flywheel to support the weight, and provision is made beyond that for a driving pulley. By ejecting the finished briquets at the bottom of the machine they can readily be dropped on a conveyor passing under the machine and carried to any point desired without handling by hand.





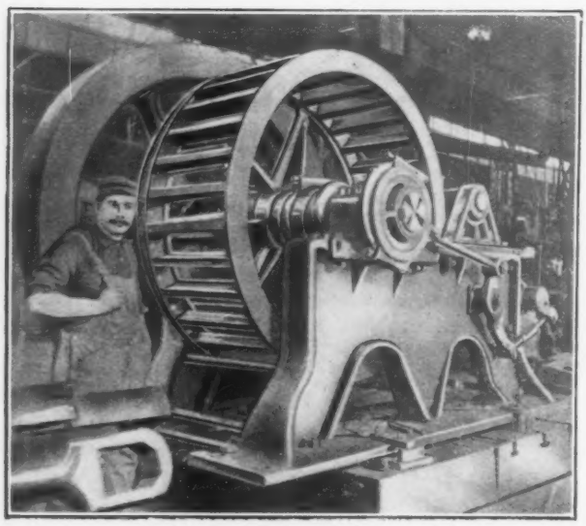
Sectional Elevations and Plan, Showing Constructional Details of the Hale Briquetting Machine.

The rest of the machinery in the plant is merely auxiliary to the briquetting machine, and can be purchased in the open market, and when properly assembled will give economical results. This makes the briquetting machine the mechanical part of most importance in the plant. All rights on this machine are owned by the Standard Fuel Company, Birmingham, Ala. This company has already built one machine, much smaller than

the one here described, and has demonstrated the correctness of the theories involved. It is now proceeding to build a large machine to install, when completed, in its Birmingham plant.

Drying.

With many binders used in coal briquetting, notably pitches, no artificial heating of the finished briquet is necessary, in fact, the application of heat would tend to soften the binder, but they have to be allowed some time to set before being sufficiently hard to ship. With other binders it is essential that they be dried in order to hasten the setting. Probably no chemical action takes place between the binder and the coal. Mr. Mills says on this point: "Chemical action if coming into play at all, is so slight as to be fully negligible. Moreover, the properties of the binder are not greatly changed by the mutual solubility, or surface action, of coal and binder at the surface of the coal. The above statements are shown to be true by the fact that if the coals are arranged in a series according to the percentage of one binder required, they will retain that same order when other binders are used, even when these binders are of the most diverse nature." Hence by drying is simply meant the evaporation of the excess moisture put into



General View of a Partly Assembled Hale Briquetting Machine.

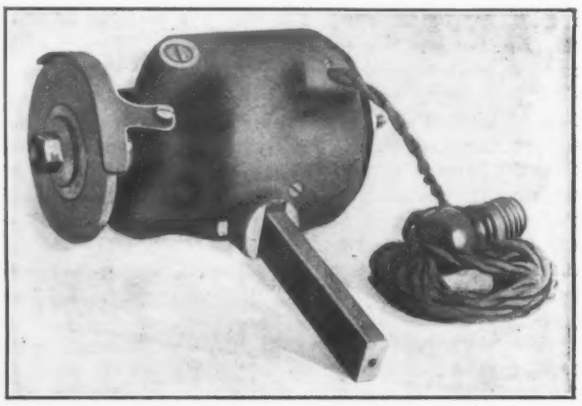
the briquet when the binder is used in solution. This is accomplished by causing a large volume of warm, dry air to circulate freely over the green briquets, wipe off the moisture from the surface and deposit it where it will do no harm. Care should be exercised that the moisture gathered from one briquet by the air is not allowed to be deposited on the succeeding briquets, thus making them more moist than when they started.

As the surface of the briquet becomes dry, the moisture from the interior should be drawn out, preferably by gradually increasing the temperature of the air as the briquets pass through the oven. If the temperature is too high at the start it forms a thin shell on the surface of the briquet, which is fairly hard, but when broken leaves the interior still moist, and it readily crumbles into dust again. A perfectly dried briquet will show no shell on the outside, and should be of the same hardness throughout.

The Franklin Rolling Mill Property for Sale.—Edward C. Hughes, receiver, is advertising for public sale February 1, at the offices of the company, Franklin, Pa., all the property, corporate rights and franchises of the Franklin Rolling Mill & Foundry Company. The real estate includes 12 acres. The buildings consist of steel structures of various sizes equipped with trains of rolls, heating furnaces, lathes, rail shears, hot saws, &c. A number of patent rights for steel tower manufacture, granted in the United States, Canada, Great Britain and other countries, are included. The receiver offers the property pursuant to an order of the Court of Common Pleas of Venango County, Pa.

The Simple Electric Portable Grinder.

Under the trade name of the Simple electric tools the Willey Machine Company, Jeffersonville, Ind., manufactures a line which includes the portable electric grinder illustrated. Equipped as shown with a supporting shank fitting the tool post of a lathe it is especially adapted for use on all lathes having compound rests. To grind a lathe center the compound rest is swiveled to the desired angle, the grinder clamped in the tool post and the carriage and cross slide adjusted to the center; the grinding proceeds with the lathe running at slow speed. Similarly work held between centers or in the lathe chuck can be ground. The centers of lathes having plain rests can be ground by taking a succession of cuts the width of the wheel and grinding to gauge.



The Simple Electric Portable Grinder, Made by the Willey Machine Company, Jeffersonville, Ind.

The brush holders and all connections of the motor are inclosed and the bearings are adjustable for wear. A strong guard is provided over the emery wheel. The motor is wound for any voltage up to 250 and for direct or alternating current. The two sizes in which the grinder is made have wheels of 4 x ¼ in. and 6 x ⅜ in., respectively. With them can be furnished internal grinding attachments and tooth rests for cutter grinding.

The Huron Steel & Iron Company Buys Norwalk Properties.—The properties of the Norwalk Steel & Iron Company and the William Kavenaugh Company, Norwalk, Ohio, have been sold through the bankruptcy court to the Huron Steel & Iron Company of Norwalk for $167,000. The sale was effected by an agreement of 96 per cent. of the creditors of the two bankrupt concerns. A consolidation of the two plants was effected about a year ago by the American Steel & Iron Company, which has been operating them since that time. The new Huron Steel & Iron Company is composed of the same interests. Under the creditors' agreement they are to be paid 75 per cent. of their claims within four years.

In connection with the meeting of the Lake Carriers' Association at Detroit last week, a movement was started for the carrying of a portion of the insurance on lake vessels by the operating companies themselves. The rate has advanced over 50 per cent. in the past three years and has become almost prohibitive. It was stated that the Pittsburgh Steamship Company, which carries its own insurance, spent $240,000 for repairs to the Steel Corporation's vessels last year, whereas the cost of insurance would have been $800,000. The preliminary insurance agreement among the vessel men has been signed by owners of over 1,000,000 tons, representing an insurable value of $60,000,000, or more than half that of the lake fleet. It is realized that many accidents are avoidable, as, for example, those caused by overloading and the effort to take advantage of the greatest possible draft.

John Brown & Co., Ltd., Sheffield, England, have purchased the English rights of the Curtis turbine.

The Green Air Heater.

A new departure in the construction of air heating or cooling coils has been made by the Green Fuel Economizer Company, 90 West street, New York city. From Fig. 1, which shows the circulation, it will be seen that the current of steam must flow straight ahead through half the tubes, then back through the other half down to the bottom outlet, driving before it any air that may be present. This is the natural direction of flow, since the air is heavier than the steam. The pressure of the steam positively pushes the air through and out of the pipes. The heater cannot become air bound, and all of its surface is always active in transmitting heat. Every pound of steam will be condensed up to the full theoretical capacity of the heater, and no steam will escape through the heater until every part of it is

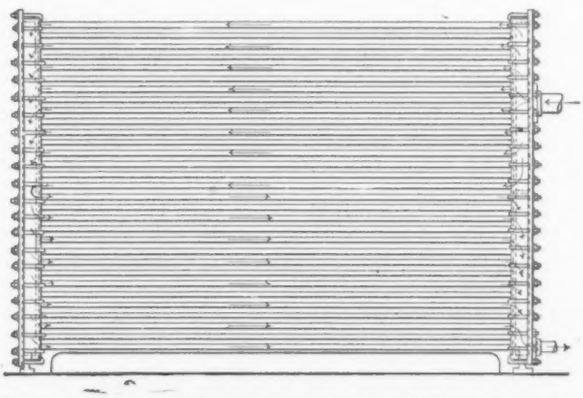


Fig. 1.—Elevation of One Section of a Green Air Heater, Showing the Positive Circulation.

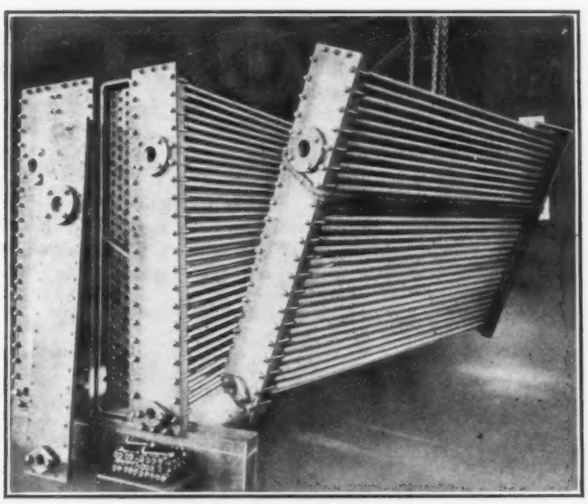


Fig. 2.—Partially Assembled Heater, Showing One Section with Header Removed, Exposing the Tubes and the Division Plate Between the Inlet and Outlet.

steam hot. The currents of steam and water are always in the same direction and should water of condensation accumulate it would be pushed through positively in the same manner that the air is pushed through.

The apparatus may be used as a hot water heater or as an air cooler, since hot water, cold water or cold brine can be circulated continuously through the pipes and with small expenditure of power. The inlet and outlet openings are so placed that the same head or pressure acts upon each tube, insuring an even distribution of the circulating fluid. By arranging the sections in two groups and circulating cold water or brine through the one group and warm water or steam through the other, the heater becomes an effective air dryer, possessing an advantage in that the cooling process does not introduce into the air a mist of water particles which can afterwards be removed only imperfectly by means of baffles and mechanical separators.

Ease in caring for a heater is next in desirability to freedom from interruption and from trouble in operation. Exhaust steam usually carries with it grease, oil, &c., which in time so coat the inner surfaces of steam coils as to interfere seriously with the transmission of heat. Hot water may deposit scale, and about the only practical way to remove it is to bore or scrape it out with tube cleaners. The cleaning of the Green heater, whether of oil, grease or scale, is simple and easy. After removing one or both of the headers the tubes can be swabbed or scraped out at once and by holding a candle at one end and looking through from the other, their condition is easily seen. The headers of the heater stand vertically at the sides of the heater casing and when the covers are removed all the tubes are exposed for inspecting, or cleaning, or for removing or repairing. The tubes are rolled into the headers like boiler tubes and can be as easily removed or replaced. It is not necessary to put an entire heater out of service for tube repairs; steam can be shut off from the injured section while the two ends of the defective tube are plugged. The cover plates are held in position by a row of hook bolts, the threaded ends of the bolts projecting through holes in the header cover plate, as shown in Fig. 2. The hook bolts are not liable to injury and can be replaced without effort.

As shown in the cross sectional view, Fig. 3, the making of a joint has been simplified by substituting a rope for the usual gasket. This rope can be laid roughly in place in the groove without fitting, cutting or cleaning, and when the cover is drawn down tightly against it by means of the heavy hook bolts, it is steam tight.

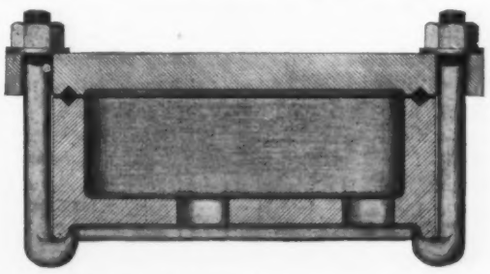


Fig. 3.—Cross Section of a Header, Showing Tube Holes, Packing Grooves and Hook Bolts for the Cover Plate.

The individual sections are light, compact and easily handled, and their size and shape permit of their being introduced through narrow doors and stairways. The cost of an airtight wall on two sides of the heater is saved, since the header covers fit close to one another, making a good joint and leaving only the bottom and top sides of the header stack to be covered or inclosed. If it is desired to protect the headers with a nonconducting covering, this can easily be applied in large removable sheets, since, except for the bolts and nuts, the covers present a smooth and even surface. The sections can be so connected up that some will be using live steam, while others are using exhaust steam or hot water, the valves being so arranged that individual sections can be thrown from one system to the other at will.

Fan Infringement Suit Decided.—The infringement suit of S. C. Davidson, representing the Sirocco Engineering Works, against the manufacturers of the Serlano fan has been decided in favor of the plaintiff, and an injunction has been granted, with costs and an account of profits by the London Court, Chancery Division, where the case was tried. The result of this suit, following the same outcome of similar suits in the German courts, is especially interesting in view of the recent consolidation of the Sirocco Engineering Company with the American Blower Company. The court reports of the London suit says that the action was practically undefended.

The Brooks plant of the American Locomotive Company, Dunkirk, N. Y., is engaged on an order for 12 locomotives for the Wabash Railroad. Twelve special locomotives for Panama Canal work, ordered by the United States Government, are about completed and will be shipped via New York.

The New Bath Grinders.

A new type of grinder, which is shown in the illustrations in its universal form for surface and cylindrical work has been brought out by the Bath Grinder Company, Fitchburg, Mass. The same novel principles in the feeding mechanism are embodied in another new machine known as the double headed internal grinding machine, designed to grind two pieces of work, or two holes of the same size or of different diameters in the same piece at the same time. By using two wheels one can be employed for roughing and the other for finishing work. Straight or taper work can be ground at the same time.

The universal grinder is known as the No. 2½. The frame of the machine is of the same general construction as the previous model, except that some parts have been added. It now has two power automatic cross feeds, one for cylindrical, and one for surface grinding. The greatest novelty of the tool is an arrangement by which the turning of a handle, any time after the slide has reversed, stops the feed at the end of the stroke, which means that the wheel can be brought to an exact position every time, allowing sufficient space to remove the work, and there are of course other advantages, such as in grinding to a shoulder.

The machine as shown, with head and foot stock, spring rests, &c., is the plain grinder equipment. Fig. 1 is a general view of the tool and Fig. 2 a detail of the apron. In the view at the right of Fig. 3 the new wheel hood and water spout are shown. The characteristic of this device is that no water is thrown by the windage, making unnecessary the use of a water shield. The remaining illustrations show adaptations and attachments.

The details of the two automatic feeds, one for surface grinding, the other for cylindrical work, are plainly shown in Fig. 2. They are independent of one another. Both can be disconnected from the cross screw. For cylindrical grinding a feed as fine as 0.0002 in. can be obtained; for surface grinding, the feeds range from 1-64 to 3-32 in. to each stroke of the table. The table slide is controlled by a single lever, which not only reverses the

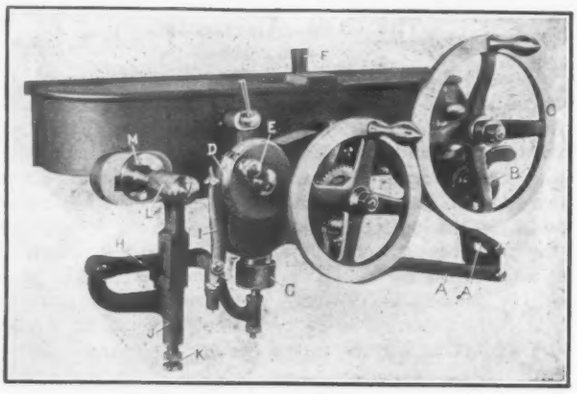


Fig. 2.—A Detail of the Apron.

feed in either direction, but starts and stops the traverse movement.

The surface cross feed is operated by a double pawl and ratchet actuated by the two lever arms A, Fig. 2, driven by a friction engaged and disengaged by the knob B. The friction engages a gear meshing the table rack. The arms act at each end of the stroke in feeding the work. This feed is hand operated through the wheel C, having upon its shaft a sliding gear which, when the wheel is to be employed, is thrown into mesh with the first of a train of gears which so compound the movement of the table that it is very easy to manipulate, the effect being not unlike that of ball bearings. The feed is operated automatically by the table dog reverse lever F.

The cylindrical feed mechanism has several new features, notable among them the device by which the feed may be stopped automatically at the end of the stroke, the operator being able to set the mechanism to accomplish this result at any time after the feed has been reversed from the previous stroke. On the back of the ratchet dial D, Fig. 2, is fastened a gear to which power is transmitted for indexing the feed screw shaft through

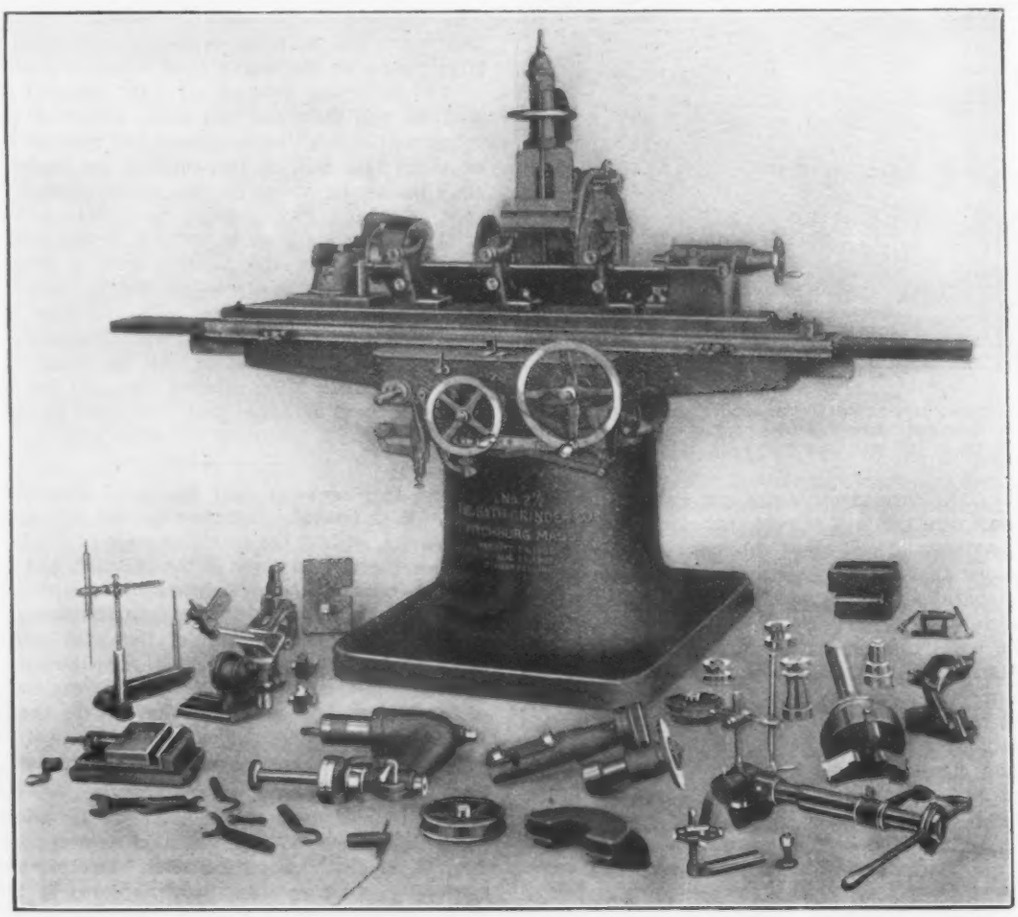


Fig. 1.—The New No. 2½ Universal Grinder with Its Attachments, Built by the Bath Grinder Company, Fitchburg, Mass.

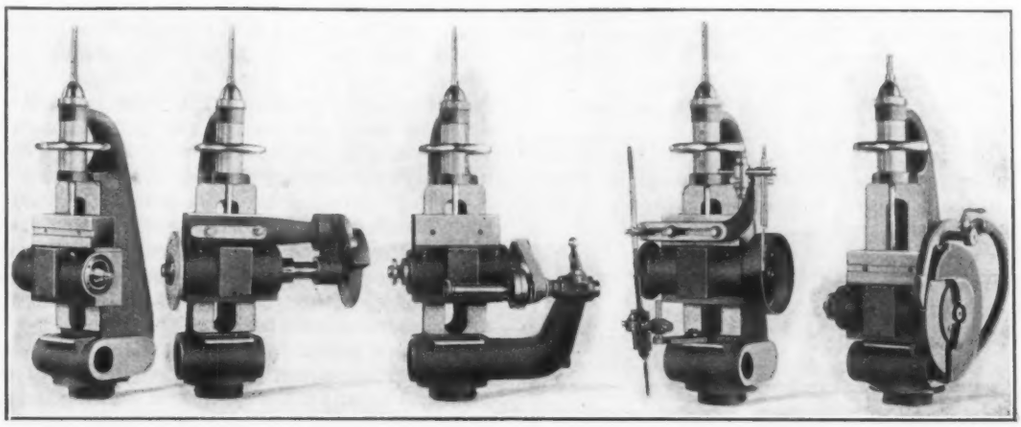


Fig. 3.—Various Ways of Using the Spindle Head.

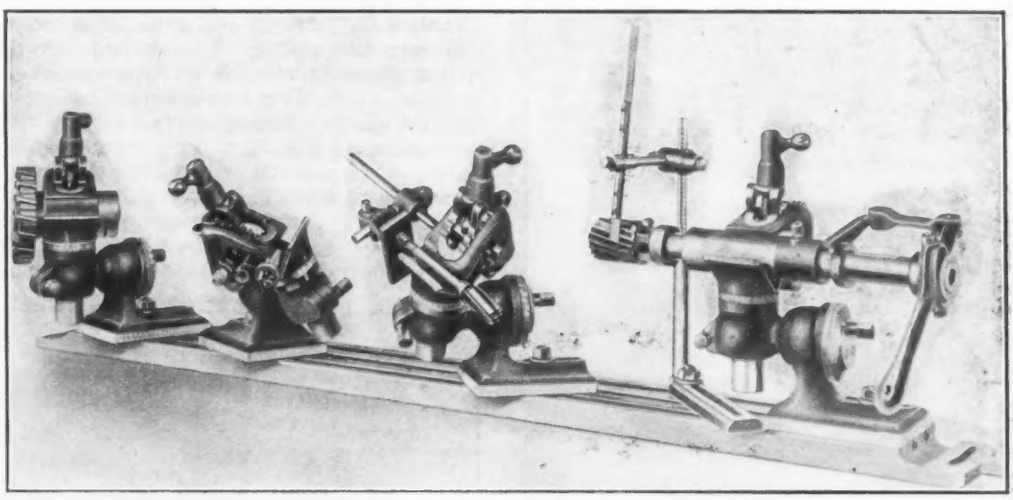


Fig. 4.—Different Manners of Supporting Work.

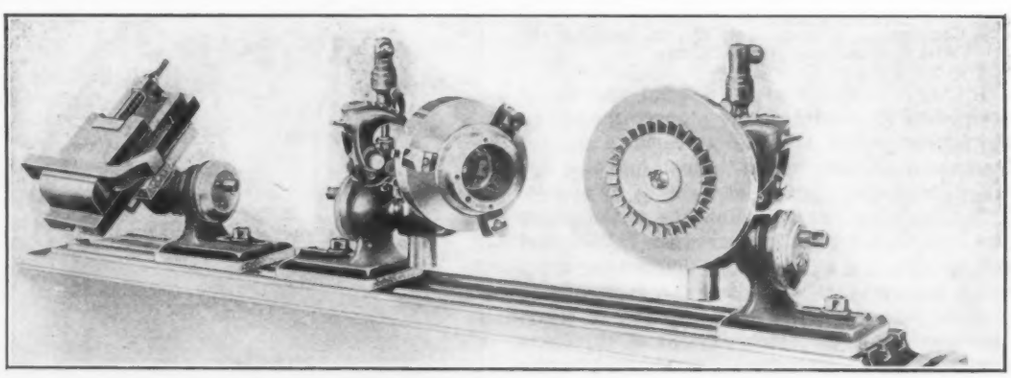


Fig. 5.—Other Uses of Work Supporting Fixtures.

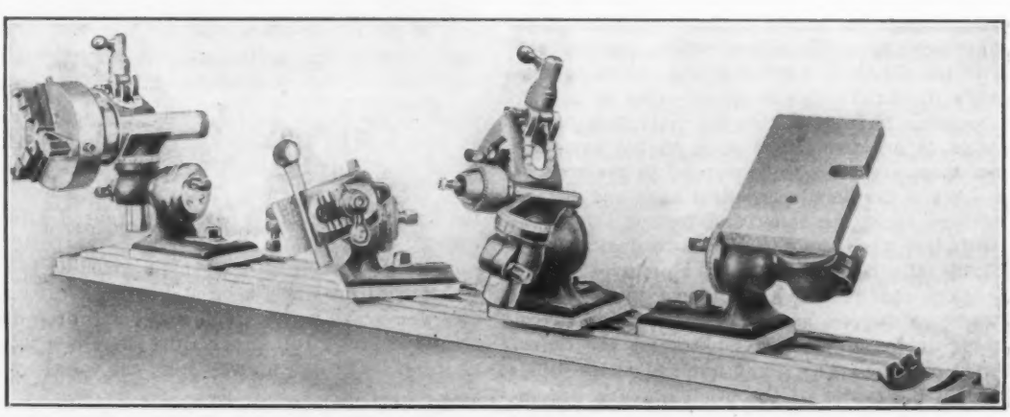


Fig. 6.—Still Other Applications of the Fixtures.

an intermediate gear mounted on a rocker. On the front face of the dial is mounted another gear of fine pitch, which meshes a small pinion on the interior face of the shield carrying the spacer. The pinion is rotated by the knurled knob E, bringing the spacer to the point on the index designating the amount of feed the machine is to be permitted to effect.

This feed is actuated from the table dog reverse lever, the motion being transmitted through a V-piece attached to the bottom of a slide passing over a yielding plunger, the knurled knob at the lower end of which is

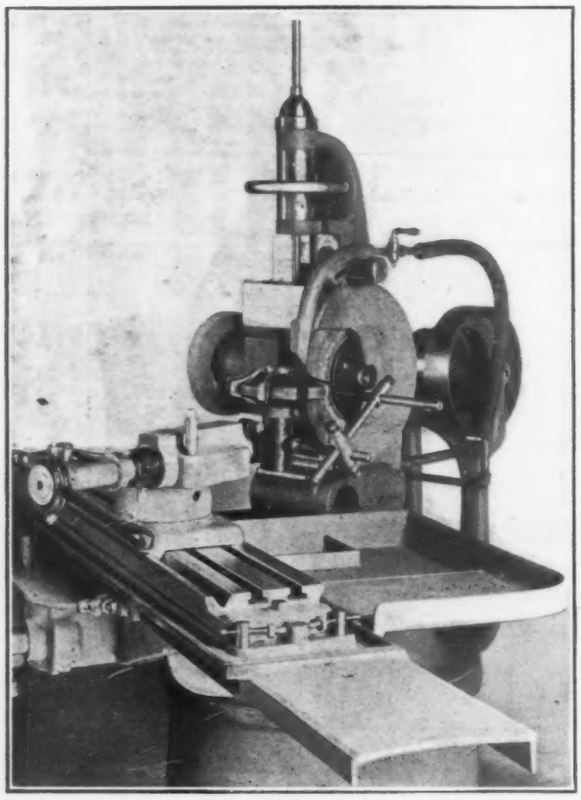


Fig. 7.—The Grinding of a Large Gear Cutter, Showing the Wizard Non-Splash Water Nozzle.

shown at G. Around this plunger is a spiral spring. As the V-piece passes the center of the plunger the spring presses the latter upward, and the movement given the slide is transmitted to the clutches through a sliding rod and rocker. The spring plunger also serves to operate the cross feed for cylindrical grinding, the motion being through the lever H, to which is fastened the ratchet arm I. In the lever stem J is an adjustable plunger the upper end of which is in contact with the lever, consequently the hight of the plunger determines the degree of movement of the lever and of the ratchet arm, and, therefore, the amount of the feed. The plunger is adjusted by the knurled nut K. The ratchet pawl is held in position for feeding or out of engagement by another plunger.

The automatic stopping of the table slide feed is accomplished through the handle L, which is connected to a projecting stem from the rocker which operates the clutches. In the handle is a spiral spring, which is compressed when the handle is disengaged—that is to say, while the machine is feeding. On the inner face of the flanged collar M are two dowel pins, on the same diameter, and there are holes to correspond in the wall of the apron. When the handle is pulled back and turned the pins cannot enter the holes, and feeding is not interfered with, but when the pins are in vertical position they will snap into the holes when the clutch reaches its central position—that is to say, at the end of a stroke.

The headstock swivels and is graduated, the swivel bearing being dustproof. A dowel pin keeps the swivel in its central position. The clamp nut and swivel binding nut are in the center of the headstock and are independent. The dead center pulley revolves on a conical bearing on the end of the quill, and is held in place on the conical bearing by a detachable flange. The center quill is constructed so that it can be used for either live or dead center grinding. The footstock has a spring center and is provided with a long quill of large diameter. On its front is a flat projection for clamping the diamond holder for truing the wheel, or for clamping the tooth rest stands in cutter grinding. The pedestals shown on head and foot stock are for the rod that carries the water shields, and do not interfere with the spring rests when used. Spring rests are provided for supporting work and absorbing vibration in shaft grinding. They have a spring tension that supports the shaft being ground. The pressure is released when the required diameter is obtained. The rests are also provided with a hand tension screw, which keeps the supports up beneath the work, thus assuring a rigid bearing.

A set of internal grinding spindles, with detachable flange bearings and of different lengths and diameters, is furnished to suit the character of work being ground.

Fig. 3 shows the application of parts. In the view at the left the finished bright surface at the end of the spindle head is to take a square or beveled protractor, to accurately place work or any attachment on the machine. Clearance for cutter or reamer grinding and work positions are measured by the combined elevating screw, sliding graduated rod and revolving dial on top of the machine, which gives a micrometer reading. The second view shows an extension arbor support for the wheel for surface grinding, form cutter work, snap gauges and similar work where it is more convenient to have the wheel carried away from the spindle head. The third view illustrates a rigid method of mounting the internal grinding arm in a bore on the side of the machine. The belt is tightened when in motion by turning the hand

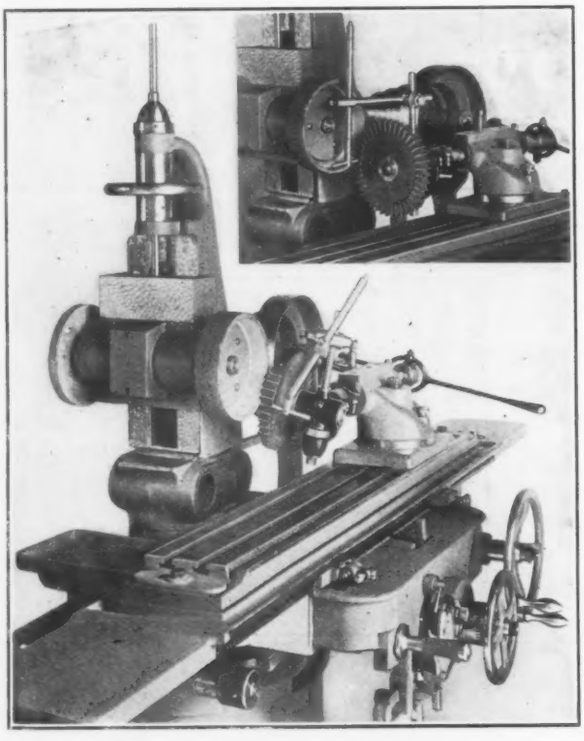


Fig. 8.—The Settings for Grinding the Side and the Face of a Side Milling Cutter.

wheel on the top of the machine. The fourth view shows an easy method of clamping the double ended tooth rest stand to the spindle head with the same screws as are used for the surface arm. The tooth rest comes down from the top and up from the bottom in front of a disk and cup wheel. In the last view of Fig. 3 the position of the spindle head when used for plain grinding is shown, together with the wheel hood and Wizard water spout that does not splash water. This spout will drop one drop at a time or give a full stream, and there is a total absence of water being blown away from the wheel by the windage.

The view at the left in Fig. 4 demonstrates how a threaded milling cutter may be mounted on an arbor and held in the universal holder for grinding, both the face

of the cutter and the spiral tooth. In the second view a short straight shank is held by one end of the jaw. In the third view a taper shank end mill is held in a V-vise, the jaw being tipped to the angle of the shank. The fourth view of Fig. 4 shows the method of grinding a spiral cutter with the cutter bar attachment mounted in the universal holder. The tooth rest is tipped to the angle of the spiral.

The left-hand view in Fig. 5 shows the horizontal vise and flange plate mounted in the base of the holder. Either can be adjusted independently of the other. In the middle view the chuck is mounted in the holder, and is holding a conical bearing. The right-hand view, Fig. 5, shows a milling cutter mounted on a face plate which is held in the universal holder.

In the left hand view, Fig. 1, the chuck is mounted in the V-vise of the universal holder, and it may be seen how it can be swung to an angle. The second view is a suggestive use of the holder, and the third view illustrates the method of holding small cutters in a chuck for grinding. The right-hand view, Fig. 6, shows the flange plate mounted in the socket of the vise, which can be set at any desired angle.

Fig. 7 shows the grinding of a large gear cutter with water, using the Wizard nozzle. All that is required is to catch the falling water in a pan. The tooth rest as shown, with grooves in the bar, is used in this operation as a gauge, and a ball in the groove keeps the rest in position, and allows it to be swung back and forth. In. Fig. 8, the main view, the cutter bar is mounted in the headstock, grinding the side of a side milling cutter, with an 8-in. cup wheel. In getting the clearance the cutter and tooth rest are tipped at the same time, both being mounted on the same support. The detail at the upper corner of Fig. 8 shows the grinding of the faces of the same cutter with the same cutter bar as before. When using this attachment the movement is practically the same as sliding the cutter on a bar. The bar is moved back and forth by the hand lever shown. When grinding the face of a cutter a tooth can be ground at each stroke, by snapping the tooth over the rest, when inside and outside the cup wheel.

The Bath Double Internal Grinder.

The double headed internal grinding machine, not illustrated, is designed to take care of the various conditions of this sort of grinding, especially where it is to be done on a large scale, and also where there is variety to the work. Each of the two independent spindle heads has an independent automatic feed for feeding the wheel to the work, and is mounted on two narrow slides with long bearings, a construction intended to do away with all side play when pressure comes against the side of the wheel. Each spindle is driven from its own drum shaft at the rear of the machine. The drum slide frame is adjustable, which provides for varying the tension of the belt, insuring sufficient tension to keep the wheel up to its work. The carrying slides of each spindle head are supported upon a central beam. The head at the right always remains stationary, that at the left is movable. A hand wheel serves to move the table to and from the grinding position, and a power quick return is provided. A stop locates the slide position of the wheel for the depth of work being ground, so that the wheel cannot strike the bottom of the hole or the face of the chuck.

The holding device is an interesting feature of the new machine. It consists of a long quill mounted in bearings, with the driving pulley for revolving the work between the bearings. The quill itself is the chuck, and work like pneumatic hammers, quills, &c., can be mounted in it and held by screws at either end and both ends ground simultaneously and in line with each other. When grinding bushings a face place is mounted in each end of the quill. A feature claimed for the construction is that the spindle of the quill chuck being larger than the hole being ground absorbs all vibration, which permits of the use of a wheel only 1-16 in. smaller than the hole being ground, and consequently, owing to the large arc of contact a large amount of stock is removed. By mounting the chuck on the swivel headstock, straight and taper work can be done at the same time. In grinding deep holes a stationary bar is attached to the sliding spindle head to support the live spindle. It is of larger diameter than the live spindle that carries the wheel. Vibration is absorbed by bringing the bearing close to the wheel. On the traverse slide are mounted four trip dogs for reversing the motion of the table. The two central dogs are placed for the length of work being ground, and when it is wanted to measure the size of work or draw the spindle head away, in whichever direction the table is moving, the center dogs, being hinged, are swung back and the dog on the end is made to stop the table when the desired position is reached. Six changes of speed of table travel can be obtained by means of a quick change gear box, the speeds being 2, 4, 6, 8, 10 and 12 ft. per minute.

The Oldest Steel Company in Sweden.

Occasional reference is made to some historic iron or other industrial plant in the United States. But nothing in this country seems entitled to be so described when its record is put alongside that of the Stora Kopparbergs Bergslags Aktiebolag, which has recently issued a pamphlet describing its works past and present. The company's address is Falun, Sweden, where its famous copper mine is located. Its iron and steel works are now concentrated at Domnarfvet. It is the oldest stock company in Scandinavia and one of the oldest in the world. The date of its establishment cannot be exactly fixed, but an original purchase deed dated in the year 1288 has to do with a sale of stock in the company, and charters given by King Magnus of Sweden and Norway are dated February 24, 1347. At that time the company's rights granted by King Magnus's predecessors were referred to as very old. The original business was the manufacture of copper, and the mine at Falun—"Stora Kopparberget" (the great copper mountain)—has been continuously worked for nearly 700 years. In this time it has yielded about 500,000 tons of copper, 15.5 tons of silver and 1.2 tons of gold, the whole representing a value of 1,000,000,000 kronor or about $277,000,000. The ore consists of copper pyrite, together with iron pyrite and quartzite, and the last named is the surrounding rock. The present yield from this mine yearly is 1100 tons of sulphate of copper, 150 tons of sulphate of iron, 3700 tons of sulphuric acid, 1000 tons of red mineral paint, 770 tons of sulphate of alumina, 30,000 tons of iron pyrite, 1000 kilograms of bismuth, 60 kilograms of gold and 225 kilograms of silver.

The company built its first iron works in 1735, based on the iron mine at Vintjärn. One plant after another was added, each devoted to its own specialty, and the company has manufactured iron at 20 localities in all. The operations were concentrated about 1870, new works being built at Domnarfvet, which is the largest iron and steel works in Scandinavia and the largest in the world based on charcoal as fuel. Tributary to it are 200 iron mines, and the company owns a number of waterfalls. Only a small part of these resources are now utilized. There are five blast furnaces, a charcoal making plant with eight large kilns and works for recovering by-products. The steel works and finishing mills are also extensive. The annual production is 75,000 to 100,000 tons of pig iron, 70,000 tons of Bessemer ingots, 26,000 tons of open hearth ingots, 4000 tons of charcoal iron blooms and 75,000 to 100,000 tons of rolled and hammered iron and steel, including bars, shapes, plates and sheets, wire rods and tubes.

The wood department of the company's operations is based on 850,000 acres of forest, spread around rivers and lakes in Dalecarlia, which form water courses of a total length of about 1700 miles. A diversified business in wood products is carried on, the operations including sawmills, sulphite pulp mills and paper mills. The illustrations in the pamphlet include the Domnarfvet Steel Works, with their workmen's houses, hospital and public baths, a series of views of the copper mines at Falun and reproductions of old purchase deeds and the charter granted by King Magnus in 1347.

The technicalities of tariff schedules are many and it is not surprising that to Congressmen charged with their

revision some of the testimony is like speech in an unknown tongue. But now and then a committeeman is prompt to show his grasp of the matter in hand. It was such a one who—not on the recent hearings, let it be said, but on those over a previous tariff bill—gave this body blow to a manufacturer appearing on behalf of wood screws: "Ah, but Mr. ——, how can you consistently ask for any duty at all on wood screws, when we propose to put lumber on the free list?"

Fluctuations in Metal Prices from 1897 to 1909—Carload Lots.

(*With Supplement.*)

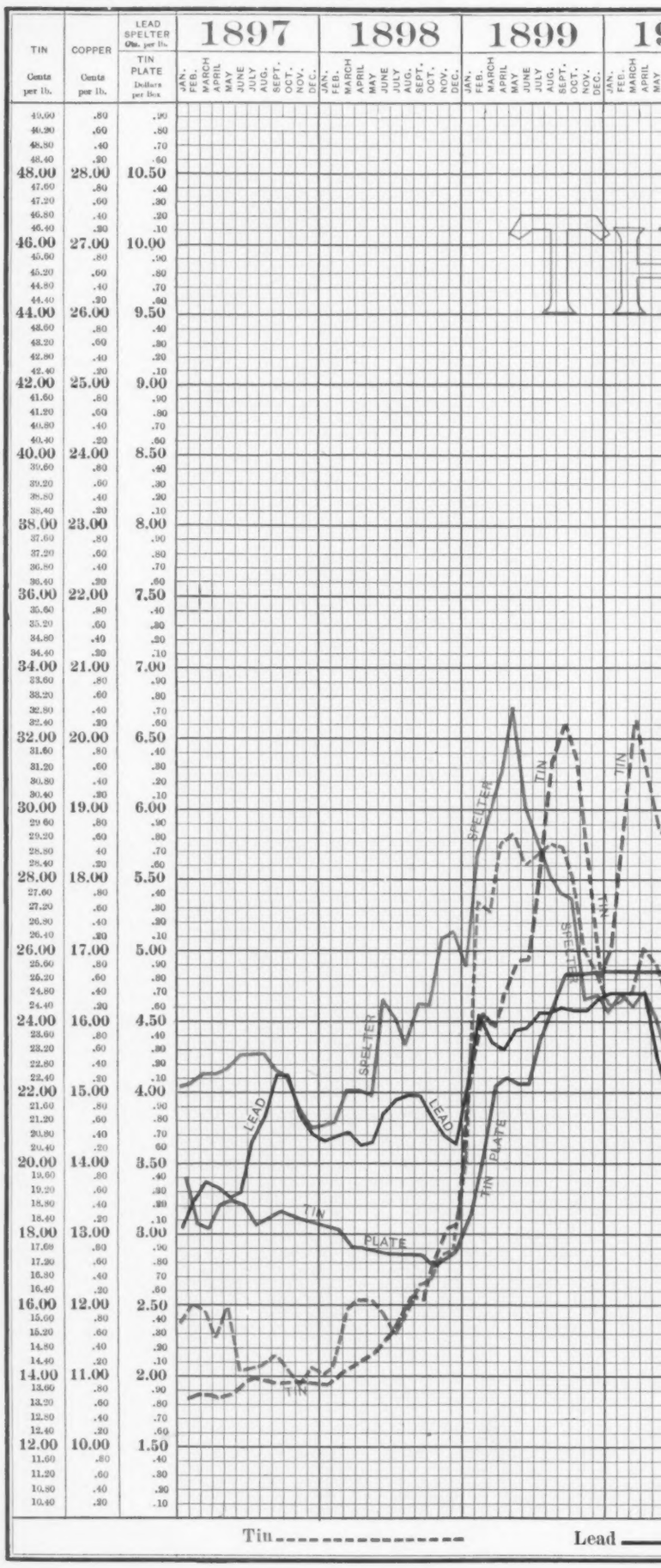
In the accompanying supplement the fluctuations in prices of some of the more important metals during the period from 1897 to 1909 are represented. The price used for this purpose is the computed monthly average of the prices of car lots, at New York, given in the Metal Market in *The Iron Age*, week by week. Three columns of figures, on both sides of the chart, give the values, the column to the left being of tin in cents per pound; the second column, copper in cents per pound, while the third represents lead and spelter in cents per pound and tin plates in dollars per base box. The following tables give the monthly prices on which the chart is based:

Average Monthly Prices, 1897-1908.

1897. Months.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
January	11.78	4.02	3.05	13.26	3.40
February	12.00	4.06	3.22	13.47	3.09
March	11.87	4.12	3.39	13.40	3.02
April	11.50	4.11	3.33	13.23	3.20
May	11.97	4.17	3.26	13.37	3.22
June	11.03	4.25	3.30	13.69	3.20
July	11.10	4.27	3.68	13.92	3.06
August	11.12	4.28	3.81	13.86	3.10
September	11.25	4.14	4.12	13.71	3.16
October	11.12	4.10	4.12	13.74	3.11
November	10.84	3.89	3.81	13.77	3.10
December	11.07	3.75	3.70	13.68	3.00
1898.					
January	11.00	3.75	3.66	13.77	3.05
February	11.19	3.79	3.69	14.04	3.02
March	11.95	4.00	3.71	14.26	2.90
April	12.05	4.00	3.61	14.41	2.90
May	12.04	3.95	3.64	14.54	2.89
June	11.85	4.65	3.86	15.05	2.85
July	11.59	4.51	3.95	15.60	2.84
August	11.85	4.35	3.99	16.14	2.82
September	12.25	4.62	3.99	16.02	2.85
October	12.37	4.61	3.81	17.25	2.75
November	12.69	5.09	3.70	18.07	2.80
December	12.79	5.13	3.62	18.20	2.89
1899.					
January	14.02	4.90	4.02	22.12	3.11
February	17.66	5.68	4.53	24.25	3.50
March	17.55	5.99	4.37	23.86	4.03
April	18.56	6.25	4.30	24.82	4.10
May	18.65	6.72	4.42	25.61	4.05
June	18.20	6.02	4.45	25.69	4.05
July	18.37	5.79	4.55	28.72	4.38
August	18.50	5.55	4.56	31.40	4.60
September	18.47	5.40	4.60	32.40	4.82
October	18.03	5.37	4.59	31.35	4.82
November	17.00	4.64	4.58	28.52	4.83
December	16.69	4.68	4.65	25.19	4.84
1900.					
January	16.21	4.55	4.70	26.00	4.84
February	16.25	4.69	4.70	29.71	4.84
March	16.41	4.60	4.70	32.42	4.84
April	17.00	4.71	4.70	30.85	4.84
May	16.80	4.52	4.22	29.25	4.84
June	16.31	4.27	3.90	30.00	4.84
July	16.31	4.24	4.03	32.76	4.84
August	16.55	4.17	4.26	31.13	4.84
September	16.75	4.10	4.36	29.63	4.68
October	16.73	4.10	4.37	28.46	4.19
November	16.75	4.20	4.37	28.10	4.19
December	16.87	4.19	4.37	26.84	4.19
1901.					
January	16.90	4.08	4.37	26.60	4.19
February	16.97	3.94	4.37	26.55	4.19
March	17.00	3.89	4.37	25.95	4.19
April	17.00	3.94	4.37	25.94	4.19
May	17.00	3.97	4.37	26.82	4.19
June	17.00	3.95	4.37	28.22	4.19
July	16.97	3.90	4.37	27.41	4.19
August	16.50	3.92	4.37	26.90	...
September	16.50	4.02	4.37	25.04	4.19
October	16.71	4.20	4.37	24.62	4.19
November	16.82	4.32	4.37	27.47	4.19
December	14.71	4.35	4.19	24.39	4.19

1902. Months.	Lake copper. Cents.	Spelter. Cents.	Lead. Cents.	Tin. Cents.	Tin plate. Dollars.
January	11.45	4.28	4.02	23.38	4.19
February	12.47	4.18	4.10	24.73	4.19
March	12.12	4.29	4.10	26.16	4.19
April	11.97	4.41	4.10	27.29	4.19
May	12.10	4.50	4.10	29.26	4.19
June	12.23	4.88	4.10	29.29	4.19
July	11.94	5.23	4.10	28.28	4.19
August	11.59	5.46	4.10	28.14	4.19
September	11.60	5.45	4.10	26.55	4.19
October	11.71	5.48	4.10	25.76	4.19
November	11.44	5.29	4.10	25.43	3.79
December	11.61	4.91	4.10	25.33	3.79
1903.					
January	12.13	4.82	4.10	27.76	3.79
February	12.80	5.00	4.10	29.14	3.79
March	14.31	5.36	4.44	30.06	3.99
April	14.85	5.65	4.59	29.69	3.99
May	14.75	5.75	4.37	29.36	3.99
June	14.56	6.00	4.25	28.30	3.99
July	13.73	5.95	4.12	27.60	3.99
August	13.35	5 94	4.12	28.00	3.99
September	13.58	6.00	4.26	27.06	3.99
October	13.42	6.05	4.40	25.83	3.99
November	13.25	5.68	4.25	25.35	3.84
December	12.30	5.15	4.19	27.53	3.79
1904.					
January	12.62	4.95	4.39	28.75	3.75
February	12.34	4.95	4.40	27.98	3.64
March	12.60	5.05	4.50	26.19	3.64
April	13.19	5.22	4.50	27.99	3.64
May	13.28	5.14	4.48	27.76	3.64
June	12.74	4.79	4.22	26.14	3.64
July	12.62	4.85	4.17	26.28	3.60
August	12.50	4.85	4.15	26.74	3.49
September	12.67	5.06	4.20	27.27	3.49
October	13.09	5.17	4.20	28.53	3.49
November	14.22	5.49	4.51	29.00	3.56
December	14.87	5.80	4.60	29.27	3.56
1905.					
January	15.18	6.17	4.56	29.18	3.74
February	15.25	6.12	4.50	29.49	3.74
March	15.25	6.06	4.45	29.21	3.74
April	15.18	5.97	4.50	30.43	3.74
May	15.00	5.55	4.50	30.04	3.74
June	15.00	5.32	4.51	30.36	3.74
July	15.03	5.38	4.56	31.71	3.74
August	16.07	5.66	4.64	32.85	3.74
September	16.12	5.83	4.85	32.21	3.74
October	16.62	6.05	5.07	32.47	3.55
November	16.90	6.17	5.48	33.46	3.53
December	18.75	6.50	5.96	35.84	3.59
1906.					
January	18.78	6.48	5.86	36.36	3.66
February	17.94	6.09	5.56	36.48	3.69
March	18.50	5.96	5.35	36.62	3.69
April	18.62	6.05	5.39	38.86	3.76
May	18.70	5.95	5.90	43.08	3.85
June	18.69	6.14	5.94	38.97	3.94
July	18.47	5.98	5.80	37.18	3.94
August	18.65	6.06	5.78	39.90	3.94
September	19.31	6.19	5.92	40.32	3.94
October	21.81	6.18	5.94	42.90	3.94
November	22.50	6.36	5.97	42.70	4.09
December	23.06	6.62	6.19	42.62	4.09
1907.					
January	24.41	6.90	6.30	42.14	4.09
February	25.10	7.00	6.31	42.16	4.09
March	23.38	6.92	6.31	41.29	4.09
April	24.62	6.81	6.16	40.84	4.09
May	24.10	6.51	6.02	43.01	4.09
June	23.94	6.45	5.75	42.65	4.09
July	21.95	6.15	5.24	41.15	4.09
August	18.94	5.71	5.12	37.35	4.09
September	16.41	5.28	4.84	37.22	4.09
October	13.80	5.45	4.64	32.33	4.09
November	13.94	5.10	4.45	30.81	4.09
December	13.48	4.39	3.76	27.92	4.09
1908.					
January	13.90	4.54	3.73	27.43	3.95
February	13.13	4.78	3.75	28.74	3.89
March	12.85	4.76	3.88	30.46	3.89
April	13.09	4.68	4.02	31.79	3.89
May	12.88	4.60	4.26	29.84	3.89
June	13.00	4.56	4.45	28.18	3.89
July	13.00	4.46	4.50	28.92	3.89
August	13.71	4.71	4.59	29.99	3.89
September	13.80	4.76	4.54	28.91	3.89
October	13.81	4.81	4.34	29.44	3.89
November	14.44	5.03	4.39	30.43	3.89
December	14.53	5.17	4.24	29.13	3.89

The Youngstown Car Mfg. Company, Youngstown, Ohio, manufacturer of industrial cars for iron and steel mills, has moved its Chicago office to 1903 Fisher Building. The office is in charge of Charles B. Owens, formerly of the American Car & Foundry Company.



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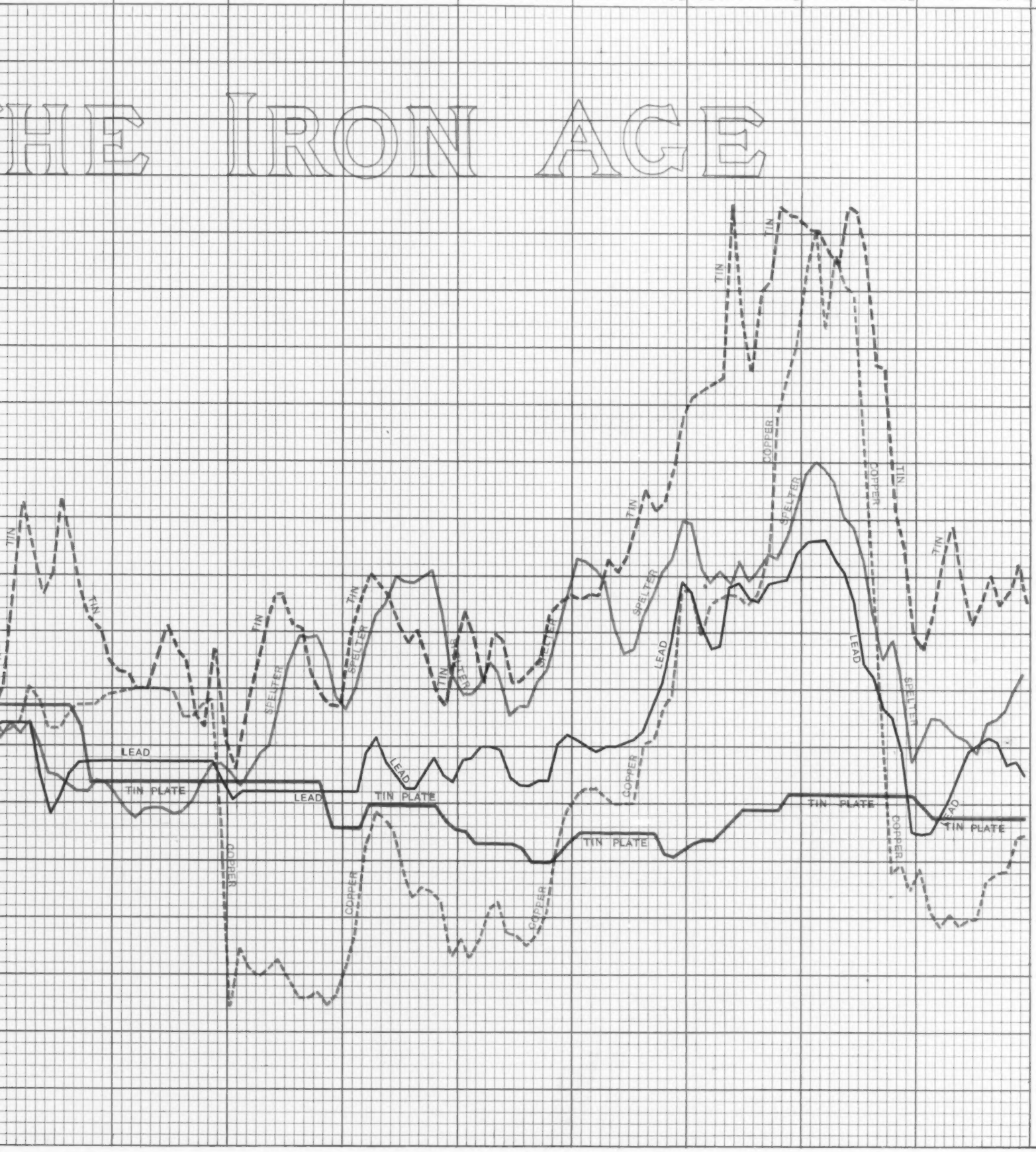


TIN Cents per lb.	COPPER Cents per lb.	LEAD SPELTER Cts. per lb. TIN PLATE Dollars per box
49.60	.80	.90
49.20	.60	.80
48.80	.40	.70
48.40	.20	.60
48.00	**28.00**	**10.50**
47.60	.80	.40
47.20	.60	.30
46.80	.40	.20
46.40	.20	.10
46.00	**27.00**	**10.00**
45.60	.80	.90
45.20	.60	.80
44.80	.40	.70
44.40	.20	.60
44.00	**26.00**	**9.50**
43.60	.80	.40
43.20	.60	.30
42.80	.40	.20
42.40	.20	.10
42.00	**25.00**	**9.00**
41.60	.80	.90
41.20	.60	.80
40.80	.40	.70
40.40	.20	.60
40.00	**24.00**	**8.50**
39.60	.80	.40
39.20	.60	80
38.80	.40	.20
38.40	.20	.10
38.00	**23.00**	**8.00**
37.60	.80	.90
37.20	.60	.80
36.80	.40	.70
36.40	.20	.60
36.00	**22.00**	**7.50**
35.60	.80	.40
35.20	.60	.30
34.80	.40	.20
34.40	.20	.10
34.00	**21.00**	**7.00**
33.60	.80	.90
33.20	.60	.80
32.80	40	.70
32.40	.20	.60
32.00	**20.00**	**6 50**
31.60	.80	.40
31.20	.60	.30
30.80	.40	.20
30.40	.20	.10
30.00	**19.00**	**6.00**
29.60	.80	.90
29.20	.60	.80
28.80	.40	.70
28.40	.20	.60
28.00	**18.00**	**5.50**
27.60	.80	.40
27.20	.60	.30
26.80	.40	.20
26.40	.20	.10
26.00	**17.00**	**5.00**
25.60	.80	.90
25.20	.60	.80
24.80	.40	.70
24.40	.20	.60
24.00	**16.00**	**4.50**
23.60	.80	.40
23.20	.60	.30
22.80	.40	.20
22.40	.20	.10
22.00	**15.00**	**4.00**
21.60	.80	.90
21.20	.60	.80
20.80	.40	.70
20.40	.20	.60
20.00	**14.00**	**3.50**
19.60	.80	.40
19.20	.60	30
18.80	.40	.20
18.40	.20	.10
18.00	**13 00**	**3.00**
17.60	.80	.90
17.20	.60	.80
16.80	.40	.70
16.40	.20	.60
16.00	**12.00**	**2.50**
15.60	.80	.40
15.20	.60	.30
14.80	.40	.20
14.40	.20	.10
14.00	**11.00**	**2.00**
13.60	.80	.90
13.20	60	.80
12.80	.40	.70
12.40	.20	.60
12.00	**10.00**	**1.50**
11.60	.80	.40
11.20	.60	.30
10.80	.40	.20
10.40	.20	.10

Lead _____ Copper - - - - - - - - - - - - - Tin Plate _____ Spelter _____

Prices of Copper, Lead, Tin, Spelter and Tin Plate in York from 1897 to 1909—Carload Lots.

The Bemis Hexagonal Milling Machine.

The milling machine illustrated is designed to mill the hexagonal ends of valves, stuffing box nuts and finished nuts of all kinds up to 3 in. across the flats. It has a capacity of 240 ¾-in. nuts per hour or the equivalent in other sizes. The machine contains a number of interesting mechanical features, among them being an adjustable head, a quick acting device for binding the work to the spindles, and a cam motion by means of which the work is fed to the cutters and withdrawn for the indexing. There are four work spindles and three pairs of cutters, so that the operator can remove completed pieces and replace them with blanks while the machine is operating. This machine is built by its designer, Edgar W. Bemis, Worcester, Mass.

The front of the machine is shown in Fig. 1, the rear view, revealing the cam mechanism, in Fig. 2, and a sectional view through the column, tables and head in Fig. 3. The column supports the head carrying the three-cutter spindle and two tables, the upper of which rests on ball bearings on the lower. The live table carries the four spindles for holding the work. The cutter drive is from the pulley shaft *a*, Fig. 3, through bevel gears and the vertical spindle *b* within the column and the bevel gear *c*, which meshes a bevel gear *d* on each of the cutter spindles. The vertical adjustment of the head, already referred to, is necessary to accommodate the machine to different lengths of work, such as valve bodies. This adjustment is accomplished through a crank handle operating the worm *e*, which actuates the worm gear *f*, the action being to rotate the coarse pitch screw through which the vertical driving shaft runs free. The lower end of the head is threaded at *g* to take the elevating screw. The bevel gear *c* is splined to the shaft and follows the head as it is raised and lowered. The cutter spindles are supported at their outer ends by overhanging arms. The two cutters on each spindle may be adjusted in their distance from one another by spacing collars.

The work is indexed from one position to the other by hand. The operator unlocks the table by means of the hand lever beneath it, seen in Fig. 1, which withdraws the locking bolts from their sockets. That portion of the indexing, however, which rotates the work spindles to present another pair of faces to the cutters is entirely automatic. Fast on the lower table is the stationary gear

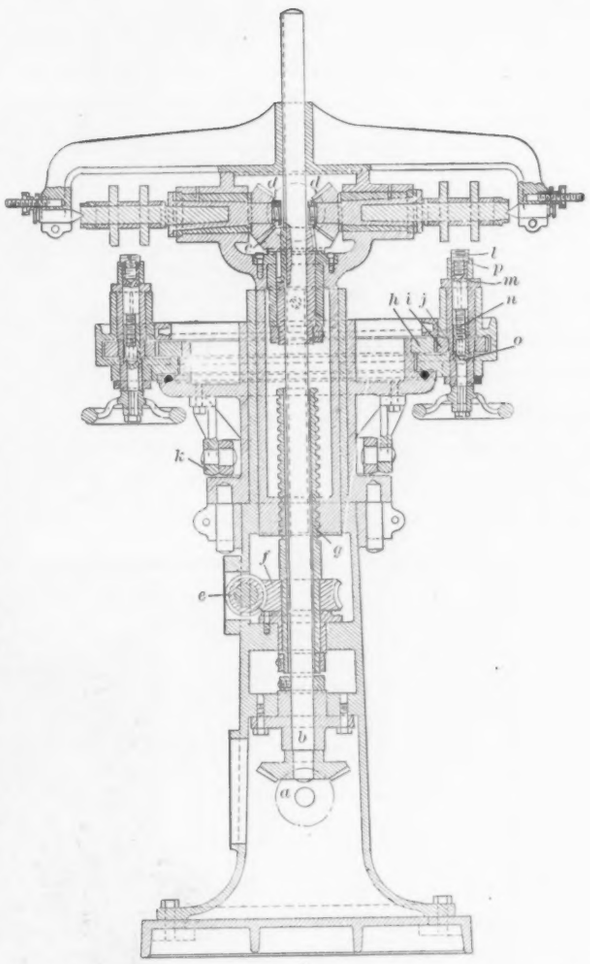


Fig. 3.—Sectional Elevation of the Bemis Hexagonal Milling Machine.

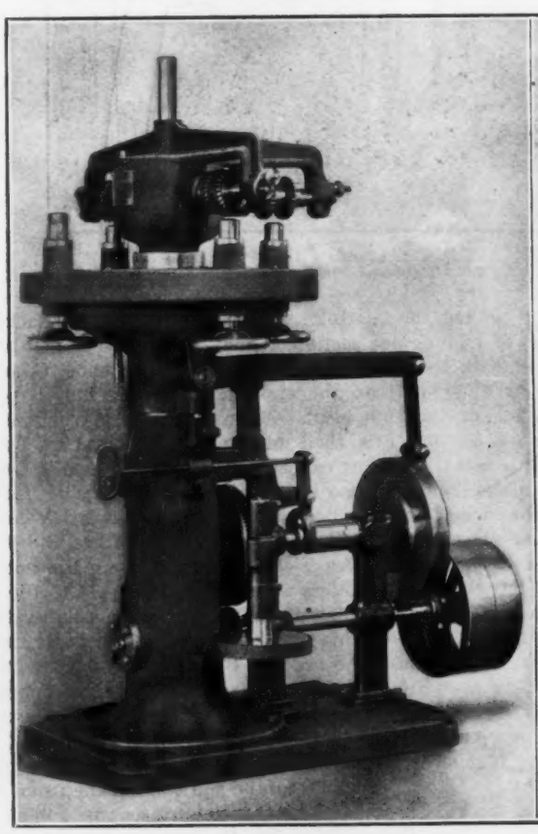


Fig. 1.—Front View.

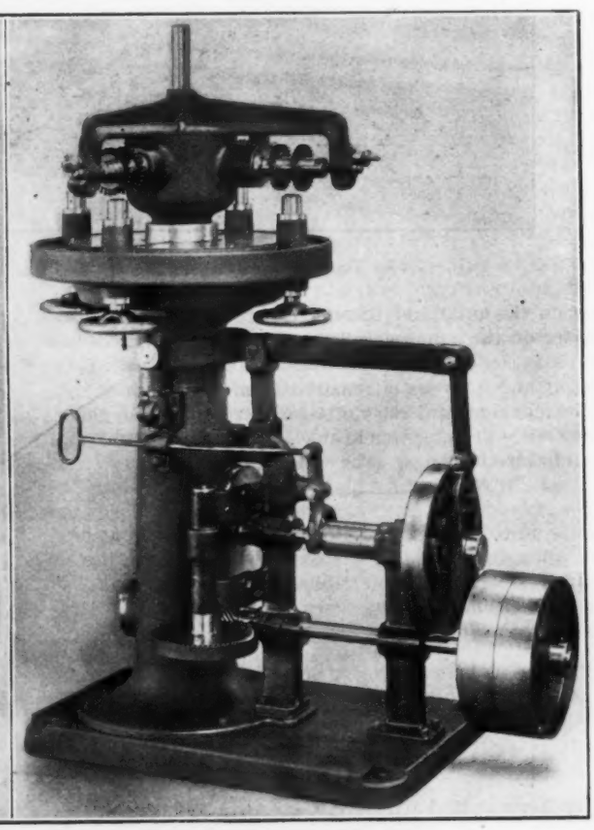


Fig. 2.—Rear View.

A Machine for Milling Hexagonal Contours Built by Edgar W. Bemis, Worcester, Mass.

h, Fig. 3, which meshes the gear *i* on each of the work spindles *j*. The rotating of the table serves to revolve the spindles to bring the work in position for the next operation. Thus each blank has one pair of faces milled by each pair of cutters.

The tables are raised and lowered in feeding the work to the cutters and in withdrawing it for the indexing by a cam mechanism plainly shown in Fig. 2. The motion of the cam and cam roll is communicated by a link to a yoke lever *k*, Fig. 3, which serves to give the required vertical movement. The cam is rotated through worm, worm gear and spiral gears from the pulley shaft.

The method of clamping the work to its spindles is an interesting one. Referring to Fig. 3, the plug *l*, upon which the blank is screwed, is a part of the sliding spindle *m*. This spindle is cut away and threaded at *n*, the threaded portion working in a similarly threaded recess in the spindle *o*, to which the hand wheel is fastened. Thus the revolution of the wheel acts to raise and lower the sliding spindle, which is splined to the spindle *j* and cannot rotate. The operator gives the blank two or three turns on the plug and then brings it down against the shoulder on the collar *p*, where it is held rigidly. When a blank is completed the reverse motion of the wheel releases it and it is easily removed from the plug.

The machine is of substantial construction throughout. The spindles are of crucible steel, accurately ground, and run in bronze bearings. The weight is 1500 lb.

It is stated in the *Review* of the National Founders' Association that a list of discontinued local branches of the Iron Molders' Union published some time ago has recently been increased by seven, making a total of 41.

The National Enameling & Stamping Company reports business satisfactory and nearing the mark of the boom of 1906. All of its 14 factories are running full time, with three shifts of 8 hr. each.

The Homestead Valve Mfg. Company, Homestead, Pa., manufacturers of valves for power plants, has recently appointed the Kenneth Anderson Mfg. Company, Detroit, Mich., its agents for that district.

A Cincinnati Locomotive Cylinder Planer.

A 72 x 72 in. x 18 ft. planer, built by the Cincinnati Planer Company, Cincinnati, Ohio, especially for machining locomotive cylinders and particularly cylinders with cylindrical valves, is shown in Figs. 1 and 2. The machine itself is the company's regular planer, arranged for parallel drive, except that the side heads are a radical departure from the usual practice.

The housings, Fig. 3, are machined on the inside with a dovetail toward the front and square on the opposite, into which fits the bracket B. This bracket is counterbalanced with a chain and weight, as indicated in Figs. 1 and 2, where the chain only appears. A chain was used in place of tiller rope, so that a crank could be applied to a sprocket wheel for raising and lowering this bracket to suit different cylinders. This bracket is secured to the housing by tightening the taper gib on the straight side which forces the bracket against the dovetail and draws it against the bearing. The front end of this bracket B is of rectangular section, is machined and scraped parallel with the housing. To this is fitted a shoe, C, which has a dovetail on the opposite side that fits the cross slide of the side head. After the slide is run on this shoe the latter is then adjusted on the bracket by the two taper gibs that can be seen in Figs. 1 and 2. After this is done the shoe becomes a part of the side head so that when the side head is moved up or down it carries the shoe with it, which slides on the bracket B. When it is necessary to reach out, say 24 in. from the housing edge, this bracket offers an additional support to the side head, greatly diminishing the strain which usually takes place on work of this kind when the side head is run in to its extreme. The bracket B was made of a length to clear the projections on all sizes and makes of cylinders and yet have enough bearing so that the shoe C would never extend over the bearing on the bracket.

Whenever the machine is to be used for planing other than cylinders, the slide can be run back in the usual way on the side head, and the bracket raised up out of the way. Then the machine has the usual full capacity for ordinary planing.

Fig. 3 shows one of the most difficult cylinders to

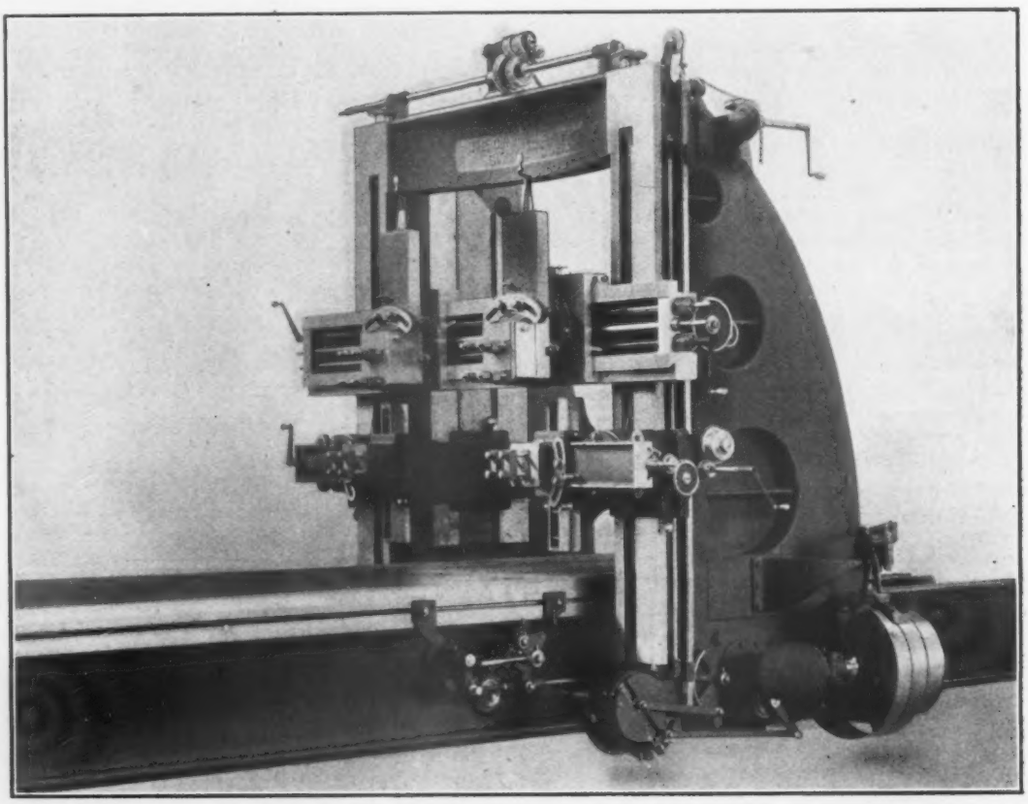


Fig. 1.—A Planer for Machining Locomotive Cylinders Built by the Cincinnati Planer Company, Cincinnati, Ohio.

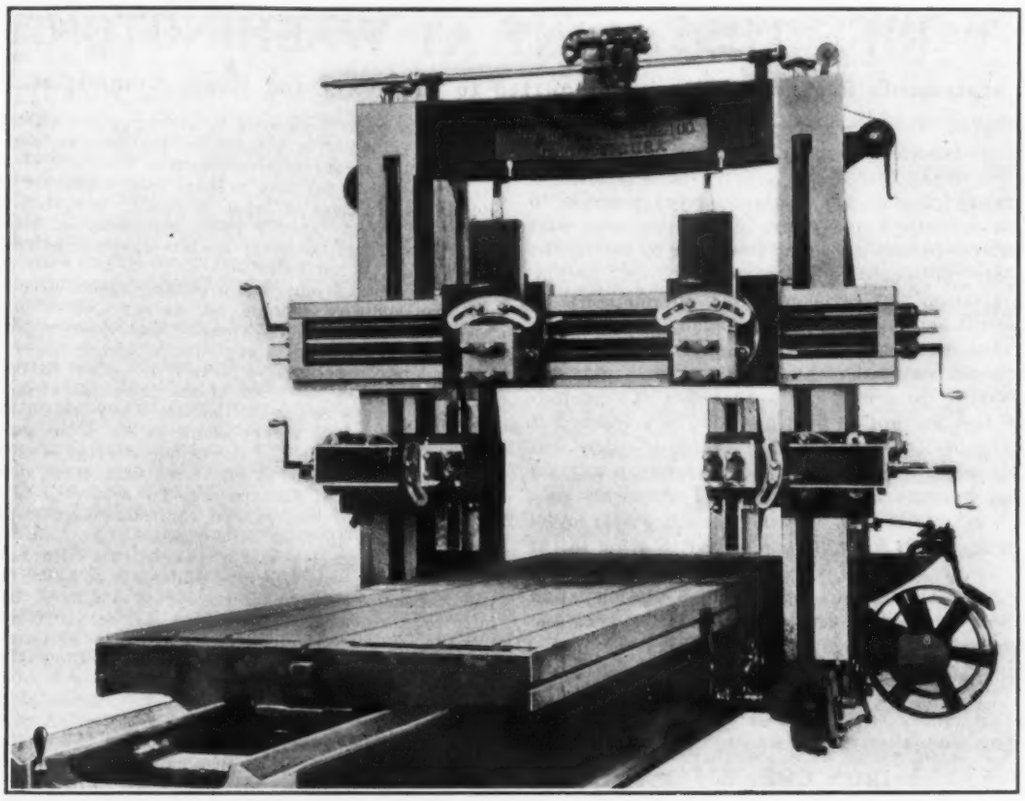


Fig. 2.—Another View of the Cincinnati Locomotive Cylinder Planer.

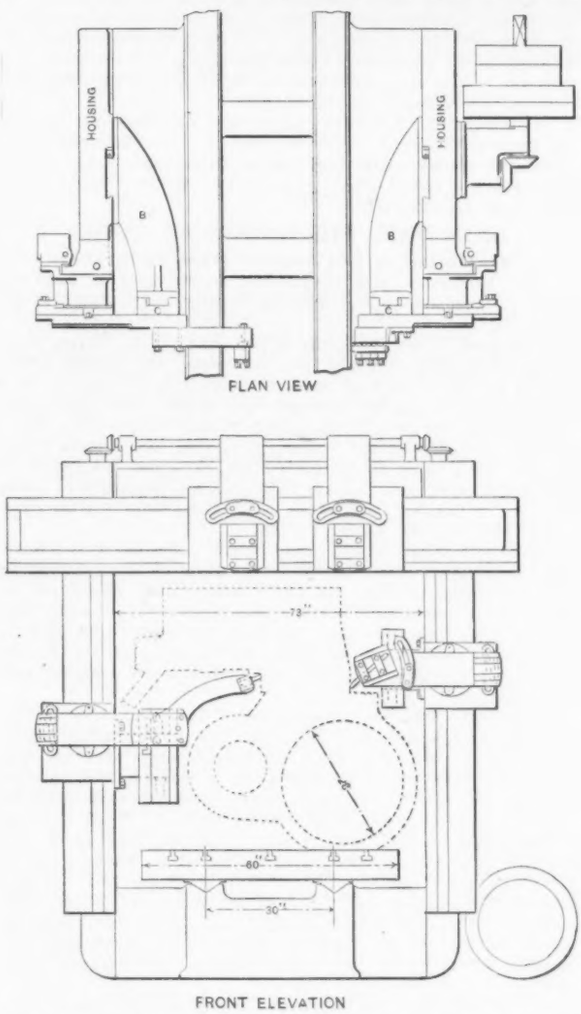


Fig. 3.—Plan and Elevation Showing the Auxiliary Supports for the Side Heads and Typical Work in the Planer.

plane in place on the planer table and illustrates very plainly the advantage of supporting the tool when it is necessary to reach out so far to get at the work.

The Oldest Iron Ship in the World.

In a paper read before the Society of Naval Architects and Marine Engineers at its general meeting in New York, November 19 and 20, the author, Henry Penton, refers to the U. S. man-of-war Michigan, which is the oldest iron ship in the world. This ship was built 66 years ago by the firm of Stackhouse & Tomlison of Pittsburgh, and since that time has continued to be the whole United States navy on the Great Lakes, where treaty obligations restrict naval representation to one ship on each side. The firm who built the vessel has passed away, and probably few people are now living who even remember its launching; more probably none who took any part in its construction. Although it does not amount to much, judged by modern standards, it was a fine ship in its day and answers its purpose at the present time as well as then, which purpose is almost entirely confined to appearing at the chief lake ports during the season of navigation to enlist recruits for the newer and bigger ships of the navy and acting as drillmaster at the annual summer practice maneuvers of the naval militia of the lake States. It is stated that many naval officers who have risen to high rank and in their turn passed away have served on the old Michigan.

When two battleships were authorized through the act of March 3, 1905, the Michigan's name was appropriated to one of them and it was renamed the Wolverine. In the navy list it is rated as an unarmored, unprotected cruiser, with a water line length of 165 ft.; beam, 27 ft.; displacement, 685 tons; indicated horsepower, 365; speed, 10.5 knots (12 statute miles); coal endurance at 10 knots, 2240 knots or 224 hours, and bunker capacity, 100 tons. The engines are of the simple inclined type, with two cylinders 36 in. in diameter and 8 ft. stroke. The original paddle wheels were 21 ft. 10 in. in diameter and each had 16 paddles or buckets. Much of our steam engineering knowledge is based upon the early experiments on expansion of steam, superheating, steam jacketing, condensation, &c., carried out on the Michigan by B. F. Isherwood, afterward engineer-in-chief, U. S. Navy.

Furnace A of the Tonawanda Iron & Steel Company's plant at North Tonawanda, N. Y., was blown in Wednesday of last week, after the completion of extensive improvements and repairs.

TARIFF TESTIMONY AT WASHINGTON.

Statements Regarding Metals Submitted to the Ways and Means Committee.

WASHINGTON, D. C., January 26, 1909.—The Ways and Means Committee has now had under consideration in executive session for a full month the schedules of the new tariff bill, but has made no great progress in the way of actually fixing rates. Under the plan pursued, tentative changes are made from day to day as the schedules are considered in order, but until this preliminary examination and revision have been completed no new rates will actually be voted upon and it is improbable that the final adjustment of any of the schedules will be undertaken before February 15.

A perplexing feature of the work before the committee is the vast amount of evidence that has reached it since the close of the hearings in the form of briefs, letters, &c., directly contradicting the oral testimony and the written statements heretofore filed. The wide publicity given by *The Iron Age* to the testimony and briefs relating to the metal schedule has served to bring to the committee many communications regarding the various items of this schedule and much valuable information has thus been received. The service which *The Iron Age* has performed in this regard is fully recognized by the committee and is believed to be highly appreciated by the trade.

Following will be found the text of a number of important statements recently received by the committee:

IRON ORE.

Statement of F. S. Witherbee of Witherbee, Sherman & Co., Port Henry, N. Y.

In accordance with the promise made your committee when I appeared before it on November 25, 1908, I herewith submit a short brief, amplifying somewhat my testimony on the iron-ore schedule.

The principal iron-ore districts in the East are located in the States of Pennsylvania, New Jersey, and New York, and to show the effect foreign ore importations have upon the iron ore produced, I will submit to your committee the production of these States separately, and then compare with their total production the amount of foreign ore imported in the corresponding years.

Year.	Pennsylvania. Tons.	New York. Tons.	New Jersey. Tons.	Total. Tons.	Importations. Tons.
1897.....	723,742	335,725	254,235	1,313,702	489,970
1898.....	773,082	179,951	275,438	1,228,471	187,208
1899.....	1,009,327	443,790	256,185	1,709,302	674,082
1900.....	877,684	441,485	344,247	1,663,416	897,831
1901.....	1,040,684	420,218	401,989	1,862,891	966,950
1902.....	822,932	555,321	441,879	1,820,132	1,165,470
1903.....	644,599	540,460	484,796	1,669,855	980,440
1904.....	397,107	842,303	499,949	1,739,359	487,613
1905.....	808,717	1,139,937	526,271	2,474,925	845,651
1906.....	949,429	1,041,992	542,518	2,533,939	1,060,390
1907.....	837,287	1,375,020	549,760	2,762,067	1,229,168

I make this comparison to show to what extent foreign ores compete with the domestic ore mined in the East.

In fixing a duty on iron ore I think three important points should be considered:

1. The present duty of 40 cents a ton is practically the equivalent of an ad valorem duty of about 10 per cent. This is lower than almost any other duty in the iron and steel schedule, and is really a duty based on the principle of "a tariff for revenue only," rather than of one designed to protect "home industry."

2. Due allowance should be made for the fact that nearly all the deposits of Spain, Cuba, and Newfoundland—the principal sources from which foreign ore is exported—are located practically on the seaboard, and they possess, therefore, unusual facilities for reaching this country at very low freight rates. I understand that freights from Spain vary from ballast rates up to, say, very rarely, $2.50 per ton, while from Newfoundland and Cuba steady rates can be obtained under $1 per ton. As the bulk of foreign ore comes from these last two countries, through rates can be obtained from the mines to points of consumption in the East at an average of not over $1.50 per ton, while the average rate from the Lake Champlain ore district—which is the largest in the East—to the same points of consumption is at least $1.90 per ton.

3. The third point which you should take into consideration is that the miner has to compete largely with the very cheap labor of Spain and Cuba. As bearing on that point, I would say that my own company—and, I believe, all Eastern mining corporations, are paying about the same wages—has paid the following average wages:

Year.		
1905	per day	$1.94
1906	per day	2.00
1907	per day	2.13
1908 (to Dec. 1)	per day	2.02

This average is made up by averaging the different classes of those employed in actually mining our ore, and does not include any of our salaried officials.

I have no actual data to show what wages are being paid for a similar class of labor in foreign ore-producing countries, but, from what I know personally of their mining conditions, I am confident the average will be considerably below $1.25, if not below $1.

As to costs, I must again confine myself largely to what my own company is doing, but as our Lake Champlain deposits are so much more extensive than those of New Jersey, I can safely venture to say that in giving you our costs I am understating those of nearly all other Eastern mines, with the possible exception of the Cornwall (Pa.) District. We have always calculated that the lower freight rates from New Jersey mines to the same points of consumption in eastern Pennsylvania put the delivered price of their ore on about the same basis as our Lake Champlain ores. As a large proportion of Eastern ores are separated to eliminate the deleterious or lean gangue, the following costs submitted to you include the cost of separation: For the year 1907, the cost at average points of competition with foreign ores was $4.669 per ton, which is equivalent to about 0.073 cent per unit metallic iron; for the eleven months of 1908 (January to November, inclusive) the cost as above was $4.507 per ton, which is equivalent to about 0.070 cent per unit metallic iron. In these costs no return is allowed on capital invested or profits.

Owing to the hazards of mining, together with the extinguishment of ore reserves, a fair return on value of ore beds and capital invested is essential.

Labor in mining alone (including separation) is represented by the following percentages: In 1907, 58 per cent. of the cost of ore; in 1908, 52 per cent. of the cost of ore.

I have not been able to obtain any actual costs of foreign ore, but I know large quantities have been sold during the past year, delivered at competitive points of consumption, on the basis of 7¼ to 8 cents a unit, which undoubtedly includes a profit to the producer. I also know that in Germany some ores are sold at points of consumption from 75 cents to $2.50 per ton, according to the grade.

In conclusion, I believe that reductions should be made in our present tariff where practicable, but that such reductions should be conservative, not radical in character, and afford adequate protection alike to capital and labor employed in the industries affected.

IRON ORE, PIG IRON AND COKE.

Statement of Los Angeles Manufacturers.

The Founders' and Employers' Association of Los Angeles, Cal., at its annual meeting unanimously approved the following:

Resolved, That it is our belief that if the duties were taken off of iron ore, pig iron, and coke, the Pacific Coast States could and would produce thousands of tons of iron and steel materials for domestic use which now have to be procured at the cost of high freight rates from other parts of this country and the world; also, that the Pacific Coast States would ship large quantities of these materials to South America, Africa, Australia, China, Japan, and other Oriental countries, which are at present supplied by Germany, France, and Great Britain.

Resolved, That if said duties were taken off it is a foregone conclusion that many large Eastern manufacturing concerns doing business on the Pacific Coast would put in factories on the coast, in this way saving the present high freight rates from the East, and enabling them to compete in the foreign trade with the countries bordering on the Pacific Ocean, with which they are now not able to compete successfully.

Resolved, That the importance of this reduction is far-reaching and would have its effect upon other industries in this country. At the present time many ships are chartered abroad, with no cargo destined here, to come to this country and get our wheat, hay, oats, cotton, and other agricultural products, lumber, and manufactured articles. Many of these vessels come to the Pacific Coast in ballast with sand, and the ship is at the expense of unloading same, which is of no monetary value, only to be used to increase our dockage space. Should this duty be removed a ballast of pig iron, iron ore, or coke could be brought here, thus decreasing the charter price of the vessel to our foreign purchaser, and raising the price of our farm, lumber, and manufactured products to the American producer.

We trust that your honorable body will see the importance of this matter and endeavor to give this coast the necessary relief.

HORSESHOE CALKS.

Statement of the Sterling Mfg. Company, Hartford, Conn.

The attention of the Sterling Mfg. Company has just been called by *The Iron Age* of December 31, 1908, to a

statement filed with your committee by the H-Calk Company with reference to the previous oral statement of Warren D. Chase, the Sterling Mfg. Company's general manager, on November 25, 1908.

This statement was largely of a personal nature, designed as an attack, and as it calls in question the truth of various statements made to your committee it is strongly desired and urgently requested that this additional statement or brief be accepted and placed on file by your committee, in order that all the facts may be before you in making up the new tariff bill. The gist of the statement of the H-Calk Company may be stated in two sentences:

1. That the capital invested in the manufacture of detachable calks in this country and the annual output of the manufacturers are smaller than was stated by the Sterling Mfg. Company.

2. That the statement of selling prices upon American manufactured calks was untrue.

To begin with, it should be noted, by reference to the oral testimony of Mr. Chase, which appears in the report of tariff hearings for the evening session of Wednesday, November 25, 1908, that this appearance was not for his own company alone, but for all the American manufacturers of detachable calks, and that he spoke for them as a whole as well as for his own company.

His original estimate of the amount of capital invested on account of the manufacture of detachable calks in this country was $1,000,000. There are no compiled statistics showing definitely what has been invested, but this estimate was later revised to about $1,250,000, which is the estimate of the Neverslip Mfg. Company, the largest producer of detachable calks. They state that they have substantially $1,000,000 invested in their own business, and this would leave about a quarter of a million to be divided among those interested in the other three brands of detachable calks on the market.

The value of the annual output of domestic detachable calks is based upon the selling prices to horseshoers, which was the basis employed throughout by the Sterling Mfg. Company in its statements to the committee. Using these values as a basis, as all manufacturers do in figuring their costs and discounts to jobbers, the value of the annual output is as stated, whereas the value given by the H-Calk Company, based upon the selling prices to jobbers, is very much too low, if the estimate of the total output, as between 40,000,000 and 50,000,000, is correct.

But the most important charge is in connection with the American selling prices. The essence of this charge in the H-Calk Company's statement reads as follows:

> We know positively that he (Mr. Chase) has sold during the years 1907-8 all his production to the H. & Rowe Calk Company of New York, and the H. & Rowe Calk Company of Hartford, Conn., on the basis of from $11 to $13.50 per thousand for the ½-in. calks, which are the average size of calks.

The H. & Rowe Company referred to is simply a selling organization, which markets the Sterling Mfg. Company's product for it by the same methods that the other manufacturers in this country use in marketing their own products. In the case of the other manufacturers, they divide their manufacturing and selling expenses into different ledger accounts upon the same books. In the case of the Sterling Mfg. Company, the marketing is done by a separate corporation, with a separate set of books, and the calks are invoiced to this separate corporation at $13.50 a thousand for the average size of calk—namely, the ½-in. This selling company has no plant of its own; its office is in the office of the Sterling Mfg. Company, and the margin of $6 between $13.50 and its quoted prices to the jobbers, $19.50, is entirely absorbed by the charges incident to the marketing of the goods. There has never been a cent of profit made by this selling company, and for all purposes of comparison with other manufacturers and other selling prices the two should be considered as a unit.

Moreover, the prices referred to in Mr. Chase's oral statement clearly appear as the prices to the horseshoer, and it is stated that such price of $26 a thousand includes the jobber's commission of 25 per cent. There is no foundation anywhere for any belief or assertion that the prices given were any other than prices to horseshoers, and they were absolutely correct. They were given for the purpose of comparison with the price at which the imported calks are sold and advertised to horseshoers—namely, $15 a thousand.

The statement of the H-Calk Company, however, could be of no value to the committee in a positive way, because it furnishes no information concerning the comparative costs of the domestic and imported calks. The cost of the imported ½-in. calks to the importer (including the profit to the German manufacturer) of $5.37 is not disputed by the H-Calk Company. These figures were sworn to by the H-Calk Company as the cost, including profit, in its contest before the Board of General Appraisers at New York, and such figures were found correct by the board.

Taking this sworn statement of the importers as to foreign cost, and also their statement as to the price at which the Sterling Mfg. Company invoices its goods to the sales organization, $13.50, which is admitted, we have the following result:

Comparative costs as shown by importers' own figures:

American calks, including profit to manufacturer	$13.50
German calks, including profit to manufacturer	5.37
Difference in cost in favor of German manufacturer	$8.13
Deduct present 45 per cent. duty on $5.37 under basket clause of schedule C	2.42
Advantage in favor of German manufacturer, even with the present duty paid	$5.71
Tariff necessary to equalize costs of imported and domestic calks on importers' own statement (per thousand)	8.13

The cost of transporting these calks to the United States, we are informed, is only about 10 cents a thousand, and therefore is too small to consider for comparative costs. The difference in the cost is principally in the item of labor entering into the manufacture, and into the cost of the supplies and sundry materials needed in the manufacture. The raw material cost is not over 25 per cent. of the total.

While the calks are made by machinery, as stated in answer to a question by the chairman, the process is not automatic, as he perhaps supposed. The material is handled in seven different mechanical devices, and it takes one or more men to operate each one.

But this basis of comparison used by the importers is not a fair one, because none of the expenses of selling goods, getting trade, advertising, development of new territory, and general administrative expenses is included in the price of $13.50. It must be advanced to $19.50 to show the real cost to the manufacturer, which includes his profit of from 12 to 15 per cent. upon the selling price.

The only real basis of comparison is between the selling price—that is, to horseshoers—because, then, in each case all expenses of selling, marketing, advertising, and general administrative expenses are included in both figures. Such a comparison is:

Comparative prices in the United States of domestic and German calks.

Selling prices to horseshoers of United States calks	$26.00
Selling prices to horseshoers in United States of German imported calks	15.00
Difference in favor of German manufacturer	$11.00
Add 45 per cent. duty on $5.37, which is included at present in selling price of German calks	2.42
Difference in favor of German manufacturer, if present tariff is not considered—that is, on free-trade basis	13.42
Tariff necessary to equalize imported and domestic calks	$13.42
Revenue tariff asked for to put German and American manufacturers on a competitive basis (per thousand)	10.00

When such figures stare one in the face, is it strange that the domestic manufacturers ask for a sufficient duty after importations of less than two years, although the imported calks are yet only a small percentage of the total consumption?

The effect upon trade and business of such a cutthroat competition is just as demoralizing as if 50 per cent. of the calks consumed were foreign ones, and with such an advantage in favor of the German manufacturer it takes no imagination to see the time when they will have all the market. If the importation had begun 10 years ago, there would now be no American manufacturers of detachable calks to appear before your committee. The revision of the tariff has come at a very opportune time for them.

Detachable calks other than the steel-center ones find very little market in this country at the present time, but the demand for such as are used was met by the domestic manufacturers until the importation of the so-called H calks began, three years ago. These were not referred to in the oral statement made on behalf of the Sterling Mfg. Company before the committee, but the same facts and figures substantially apply to such calks as well.

Referring to various other allegations in the statement of the H-Calk Company:

1. The selling prices of calks are not fixed by the Neverslip Mfg. Company alone or in combination, or by any other manufacturer alone or in combination. Prices to the consumer, the horse owner, vary in different parts of the country, although they are the same upon all calks, even upon those sold by the importers to the horseshoer at $15 a thousand. This latter fact is due to the small number, 16 or 50, sold at one time to the consumer. The competition between manufacturers comes in the sales to the jobbers, and it is a very live competition, as any jobber of iron or heavy hardware will affirm.

2. Neither the Neverslip Mfg. Company nor any one else is negotiating to take over the Sterling Mfg. Company, and there never have been any such negotiations, nor any rumors nor reports of anything of the kind. The statement is entirely gratuitous and false.

3. Of course, it is quite apparent that the statement of the H-Calk Company was made in the hope of discrediting this company, rather than with any expectation of securing a reduction in the tariff; but, fortunately, the motive for the attack appears in the statement itself, *i. e.*, that about 200,000 German calks, which had been bought as part of several millions by the Sterling Mfg. Company in order to prevent demoralization in the trade, was rejected by the Sterling Mfg. Company.

THE PRESENT PIG IRON DUTY DEFENDED.

Brief of Joseph G. Butler, Jr., to the Ways and Means Committee.

In accordance with a promise made at the tariff hearing on November 25, Joseph G. Butler, Jr., Youngstown, Ohio, has submitted an exhaustive statement to the Ways and Means Committee in support of his request that no change be made in the pig iron schedule in the tariff act. He makes the statement as the representative of a large percentage of the merchant blast furnaces of the United States, all of whom are independent, buying their raw materials in the open market and selling their product also in the open market in open competition with one another and the foreign producers. With regard to scrap, Mr. Butler says:

Maintenance of the present tariff on steel and iron scrap is of the greatest importance to those whom I represent, as this material is used principally as a substitute for pig iron and generally at a much less average cost. A reduction in the tariff on steel and iron scrap would result in great disturbing injury, especially at the present time, to railroad companies, farm machinery manufacturers and others, who are its principal sellers.

Referring directly to the product of merchant furnaces, he says:

The fact that all "iron in pigs" must be cast in sand or iron chilled molds restricts the size and capacity of the merchant blast furnaces and thus increases their tonnage cost. The capacity of these furnaces is approximately one-half that of the large furnaces making pig iron which is taken direct to the steel works in molten state, thus omitting the casting process. The cost of materials entering into the cost of manufacture vary greatly, owing to local variations in freights, costs of coke and cost of labor.

There are many times when the present duty does not protect, and when the selling prices of pig iron is less than it would be by adding the tariff to its cost.

The duty should be protective under the most adverse circumstances, such as the practice of dumping of foreign pig iron here, the payment of export bonuses, and special through freights to seaboard and interior domestic points, this product being frequently carried as ballast.

Mr. Butler has obtained from various manufacturers their costs of making pig iron in the principal producing districts of the United States. These costs mainly cover operations during the year 1907. The details are attached to his statement as exhibits No. 1 to No. 17. Limitations of space prevent their full reproduction here, selections having been made of the most representative, as follows:

EXHIBIT NO. 2.

Furnaces located at Buffalo, N. Y.

2.10 tons iron ore	$8.53
1.25 tons coke	4.87
0.65 tons limestone	.55
All other manufacturing costs except interest	2.50
Cost per ton of pig iron f.o.b. cars at the furnace	$16.45

Freight rate, Buffalo to New England, is $2.45 per ton, making cost delivered in New England $18.90. The above does not include interest, which most companies have to pay to a more or less extent, nor insurance, nor any return on the capital employed.

EXHIBIT NO. 3.

Total cost f.o.b. cars of a furnace located in southern Ohio. Detailed cost of 69,806 tons of foundry and malleable iron in 1907:

Material.	Tons.	Cost per ton.	Total.	Average per ton.
Ore used	132,316	$4.78	$632,390.08	$9.06
Scale used	264	3.93	1,039.63	0.01½
Coke used	79,526	3.74	295,108.79	4.23
Limestone used	38,049	.93	35,691.64	.51
Total material				$13.81½
Labor			$121,611.68	1.74
Salaries			9,366.00	.13
Supplies			10,688.47	.15
Expense (water, legal, &c.)			4,246.86	.06
Repairs			10,645.03	.15
Tools			489.24	.01
Insurance			1,253.90	.02
Taxes			6,156.25	.09
Sand and clay			4,004.27	.06
Laboratory			3,342.10	.05
Steam coal			11,034.15	.16
Office supplies			367.57	.00½
Totals			$1,147,435.69	$16.44

EXHIBIT NO. 4.

Below is given the information regarding price, cost of production, &c., covering 10 years, which we think is what you want. Selling expenses, losses, improvements and repairs, depreciation, discount and interest, &c., are closely deducted always:

Year.	Made tons.	Cost per ton.	Net selling price.	Gain or loss per ton.
1907	69,806	$16.44	$17.70	Gain $1.26
1906	64,938	15.65	16.06	Gain .41
1905	72,446	14.78	15.70	Gain .92
1904	44,556	12.67	13.40	Gain .72
1903	37,292	16.13	15.68	Loss .45
1902	60,572	14.92	18.07	Gain 3.15
1901	53,538	12.99	14.56	Gain 1.47
1900	40,508	15.32	16.50	Gain 1.18
1899	53,049	11.08	15.37	Gain 4.29
1898	43,603	8.43	9.60	Gain 1.17

We give the above in confidence for what it may be worth to you in making up your brief. We can still make iron at the 1898 cost if labor at the ore and coal mines, on the railroad and at the furnace is put back on the basis of $1 per day for common laborers, or 50 per cent. reduction on everything from present costs. Only sentimentalists and theorists want such conditions.

EXHIBIT NO. 5.

From a southern Ohio furnace: "Our fiscal year ends on March 31, and we have statistics here for two years beginning April 1, 1906, and ending March 31, 1908, which show that the average cost for that period of our iron was $16.19 and the average price of iron shipped during the same period was $17.82. We think that the average of the two years named is as fair a comparison as can be made."

EXHIBIT NO. 6.

Detailed cost of 119,081 tons of basic and Bessemer manufactured during the year 1907:

Material:	Tons.	Cost per ton.	Total cost.	Used per ton of iron. Pounds	Cost per ton of iron.
Ore	228,001	$4.86	$1,108,478.65	4,289	$9.3086
Converter slag	712	.75	534.00	13	.0045
	228,713	$4.85	$1,109,012.65	4,302	$9.3131
Sand	3,363	.90	3,026.79	56	.0254
Coke	140,073	3.98	557,120.05	2,353	4.6785
Limestone	57,941	1.10	63,748.90	1,089	.5353
Total material			$1,732,908.39		$14,5523
Operating labor:		(total)	150,914.54	(per ton)	1.2672

	Total. $	Per ton. $		
Office and laboratory	19,114.59	0.1605		
Engine and boilers	14,693.00	.1234		
Furnace labor	80,945.85	.6797		
Yard labor	1,212.55	.0102		
Unloading stock	16,161.95	.1357		
Metal yard	4,214.45	.0354		
Casting machine	14,572.15	.1224		
Running expenses:			19,314.09	.1622
Office and laboratory	5,717.53	.0480		
Coal to boilers	1,624.65	.0137		
Light	580.55	.0049		
Tools	987.45	.0083		
Supplies	10,403.91	.0873		
Casting machine:			2,884.80	.0242
Coal to boilers	1,270.53	.0107		
Supplies	771.43	.0065		
Tools	16.42	.0001		
Ladles	442.02	.0035		
Lime for molds	404.40	.0034		
Running repairs:			1,623.27	.0136
Supplies	100.12	.0008		
Casting machine	1,523.15	.0128		
Labor				
Taxes and insurance			10,237.16	.0860
Relining and depreciation			59,540.50	.5000
Book cost for year 1907			$1,977,422.75	$16.0056

Material .....$14.5523 per ton of iron.
Labor, exp., &c. 2.0533 per ton of iron. 52.07% yield of iron ore.

$16.6056

EXHIBIT NO. 7.

Average yearly cost per ton manufacturing standard Bessemer and basic pig iron, furnace plant in Mahoning and Shenango valleys, 1903-1907 inclusive, with two to four furnaces in operation:

	1903.	1904.	1905.	1906.	1907.
Metallic mixture	$7.014	$7.142	$7.474	$8.764	$9.338
Coke	5.172	3.243	3.978	4.786	5.582
Flux	.623	.461	.521	.679	.822
Labor	1.745	1.190	1.205	1.259	1.368
Supplies	1.392	.782	.660	.628	.686
Totals	$15.946	$12.818	$13.838	$16.116	$17.796

Average yearly selling price per ton, f.o.b. cars, same plant:

1903.	1904.	1905.	1906.	1907.
$17.61	$12.71	$15.33	$18.38	$21.23

EXHIBIT NO. 8.

Plant in the Middle West; detailed cost of 140,359 tons of pig iron produced in 1907; basic, malleable and foundry:

Material:	Tons.	Cost per ton.	Total.	Quantity per ton of iron.	Cost ton Pounds. of iron.
Ore	231,511	$4.50	$1,042,150.74	3,695	$7.4249
Cinder	28,707	2.49	71,342.66	458	.5083
Coke	169,494	4.17	707,425.34	2,415	5.0401
Limestone	84,303	.70	59,691.24	1,201	.4252
Sand	5,966	.80	4,772.59	85	.0340
	Total.	Per ton.			
Operating labor:	$	$			
Manage't and acct.	8,925.03	0.0636			
Wages	197,208.49	1.4050			
Laboratory wages	2,220.00	.0158	208,353.52		1.4844
Running expenses:					
Coal	8,231.55	.0587			
Salaries	13,400.00	.0955			
Office expenses	2,412.73	.0172			
General expenses	22,678.63	.1616	46,722.91		.3330
Running repairs:					
Chills (supplies)	4,622.12	.0329			
Repairs and labor	44,951.28	.3203	49,573.40		.3532
Relining and renewals			70,251.18		.5002
Taxes and insurance			4,757.06		.0339
Company insurance			1,328.66		.0094
Credit			$2,266,369.30		$16.1468
Interest and discount			5,701.03		.0406
			$2,260,668.27		$16.1060
Cost of material per ton of iron					13.4325
Cost of labor, expenses, &c					2.6735
Total					$16.1060

EXHIBIT NO. 9.

From a furnace that produces its own ores and coke, and is located south of Mason and Dixon's line: "For the year 1907 our net sales of pig iron, f.o.b. cars at furnace, averaged $19.43. The average was rather high, owing to our having been fortunate in contracting well ahead at high figures. The cost of producing iron was $14.21. Our net selling price, f.o.b. cars at furnace, for the years given below were as follows:

1899	$12.64	1904	$12.20
1900	14.33	1905	13.89
1901	11.87	1906	15.83
1902	16.05	1907	19.43
1903	15.08		

"Making the average for the nine years of $14.59. For the year 1908 to the 1st inst., our average net sales were $14.51. About 50 per cent. of our product is shipped to eastern Pennsylvania and New England tidewater points. Our freight to such Pennsylvania points is $3.25 and to New England $4.25 per gross ton."

EXHIBIT NO. 10.

From E. C. Means, manager of the Low Moor Iron Company: "The average cost of making pig iron in Virginia for the five years 1903 to 1907 inclusive, where furnaces owned and operated their own ore mines, coal mines, limestone quarries and coke ovens, approximately was as follows:

Wages in all departments	$9.42
Supplies and renewals of equipment	.80
Horses, mules, &c	.49
Assembling freights	2.10
Taxes	.18
Royalties on coal, ore and limestone	.70
Depreciation of plants to keep modern	.20
Selling commissions	.28
Total	$14.17

"Freight to New York, $2.80 by rail and water (the lowest rate), makes total delivered price in New York $16.97. Adding $1 for reasonable profit for investment makes fair selling price, New York, $17.97 per ton.

"During the five years above named, common labor in Virginia was paid a daily wage varying from $1.75 per day of 10 hr.; average daily wage during that period was about $1.50. This, however, includes only common day labor at furnaces, ore mines and limestone quarries. In West Virginia, at the coal mines, wages averaged $1.75 per day of 9 hr.

"The writer's opinion of the revision of the tariff is that present tariff of $4 per ton should apply when No. 2 X iron, silicon 2.25 to 2.75 per cent., sulphur under 0.05, is selling at $18 f.o.b. New York Harbor; that for each $1 advance in the price of iron, tariff should be reduced 50 cents per ton; that is to say, when No. 2 X iron is selling at $19, New York Harbor, tariff should be $3.50 per ton, when it is selling at $20 the tariff should be $3 per ton. The tariff should not, however, be less than $2 per ton, otherwise the revenue derived from the tax on iron would be less than if maintained at $2."

EXHIBIT NO. 11.

The Virginia Iron, Coal & Coke Company's statement: Number of tons and cost of pig iron produced during the year ended June 30, 1906:

Tons produced.	Total cost.	Cost per ton.
237,113.5	$3,111,029.83	$13.1204

Analysis of the cost to produce a ton of pig iron for the year ended June 30, 1906:

	Ore.	Coke.	Stone.	Furnace.	Total.
Labor	$2.0873	$2.1904	$0.2896	$1.6569	$6.2242
Transportation	1.4831	1.6632	.2955	.....	3.4418
Other expenses	1.5492	0.5521	.0927	1.2904	3.4544
Total cost	5.1196	4.3757	.6778	2.9473	13.1204

Labor	$6.2242
Transportation on raw materials	3.4418
Other expenses	3.4544
Total cost	$13.1204

Number of tons and cost of pig iron produced during the year ended June 30, 1907:

Tons produced.	Total cost.	Cost per ton.
202,453	$2,921,557.40	$14.4308

Analysis of the cost to produce a ton of pig iron for the year ended June 30, 1907:

	Ore.	Coke.	Stone.	Furnace.	Total.
Labor	$2.2299	$2.4091	$0.4384	$2.0091	$7.0865
Transportation	1.1934	1.6429	.2735	.....	3.1098
Other expenses	1.7784	.6127	.1699	1.6735	4.2345
Total cost	5.2017	4.6647	.8818	3.6826	14.4308

Labor	$7.0865
Transportation on raw materials	3.1098
Other expenses	4.2345
Total cost	$14.4308

Number of tons and cost of pig iron produced for the year ended June 30, 1908:

Tons produced.	Total cost.	Cost per ton.
133,927	$2,012,361.32	$15.0258

Analysis of the cost to produce a ton of pig iron for the year ended June 30, 1908:

	Ore.	Coke.	Stone.	Furnace.	Total.
Labor	$2.0507	$2.6173	$0.4538	$2.1738	$7.2956
Transportation	1.3763	1.3828	.1369	.....	2.8960
Other expenses	2.0474	.6263	.2824	1.8781	4.8342
Total cost	5.4744	4.6263	.8731	4.0519	15.0258

Labor	$7.2956
Transportation on raw materials	2.8960
Other expenses	4.8342
Total cost	$15.0258

"Other expenses" mentioned in the statement includes tools, supplies, royalties, general expenses, repair fund and depreciation of improvments, but does not include bond interest, taxes, insurance, development and dead rents.

EXHIBIT NO. 12.

From Capt. H. S. Chamberlain, one of the representative manufacturers of merchant pig iron in the South:

I consider the present rate of duty an absolute necessity in order to successfully meet foreign competition in the seaboard market. Our freight rate to New York is $4.14 and Boston $4.49 (which is the shipping point for New England business); say it is $4.31 per ton from Tennessee and $4.42 from the Birmingham District; this is nearly, if not quite, twice the rate from Liverpool or German ports, and as these are large and important markets it is vital that they be retained for American producers.

Our cost for the manufacturing of pig iron in 1907 was $12.93 per ton, leaving out interest on investment, and this cost was made up entirely of labor, with the exception of 85 cents per ton charged on pig iron as royalty on ore, coal and limestone entering into the manufacture. Add to this a freight rate of $4.31 per ton and (with low labor cost and low ocean freights for the foreign make) without the tariff the Eastern, our natural, market is lost to Southern manufacturers.

Our average selling price for the past five years was $12.82 per ton, yet cost for a portion of the time was less than in 1907, owing to lower wages which varies greatly in the different years.

The consumption of pig iron in the South is comparatively small, so producers are compelled to seek Northern markets. As a great deal of capital has been invested in the past 20 years in the iron and coal industry in the South, and large developments have been made (an important factor in the material welfare of the section), it would not seem the part of wisdom to so change the tariff rates as to jeopardize present investments and retard further progress.

EXHIBIT NO. 14.

The following cablegrams are given as received here from an absolutely reliable source:

Translation of cablegram received December 3, 1908.

Average German cost:

	Marks per 1000 kilos.	U. S. gold per 1000 kilos.	U. S. gold per ton of 2240 lb.
Coke	13.00	$3.094	$3.14
Ore Lorraine District	2.00	.476	.48
Ore foreign	10.00	2.38	2.42
Other German	4.00 to 5.00	.0952 to 1.19	.97 to 1.2
Pig iron, Lorraine Dist.	36.00	8.568	8.71
Pig iron, other	42.00	9.996	10.16

Steel Making Pig Iron, Middlesbrough District.

1 ton Spanish ore	$2.53	
1¼ tons Cleveland ore at 1.25	1.56	$4.09
1 1-10 tons coke at 3.77		4.14
½ ton stone		.25
Other items		1.00
Total		$9.48

Ocean Freight from European Seaports to Boston, New York Philadelphia and Baltimore.

Iron ore and pig iron.....6s. 6d. (say $1.60) per gross ton

Translation of cablegram received December 9, 1908.

Pig iron costs are present and include economy effected by and revenue from by-products, use of gas engines, modern appliances. Works: Luxembourg, Lorraine, Saar District (Germany), Moselle (France), Liege, Middlesboro. Information as to lowest costs given is from principal works above districts which represent our principal competition, but numerically as to general average does not represent cost of less favorably situated works, geographically or otherwise, which varies equivalent to 4s. ($1) to 6s. ($1.50) per ton. Position is similar to that in the United States in this respect.

Translation of cablegram received December 10, 1908.

Pig iron costs include taxes, depreciation, interest, labor, insurance. Subdivision these charges is not obtainable at the moment. Information given you is very reliable.

EXHIBIT NO. 15.

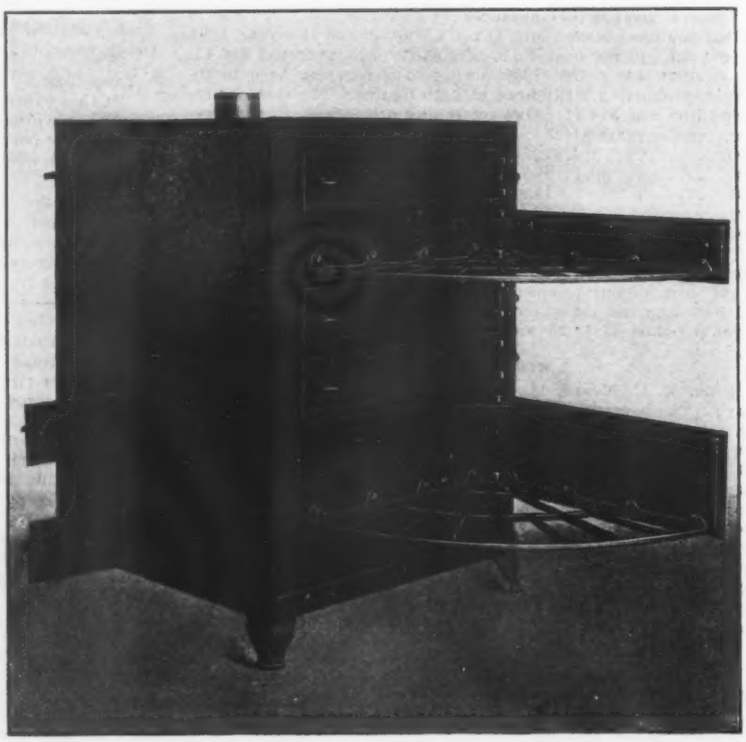
Table showing comparative blast furnace wages in United States and England:

	United States.	England.
Furnace keeper	$2.90	$1.82
Top fillers	2.55	1.27
Cinderman	2.30	1.21
Bottom fillers	2.30	1.12
Laborers	1.65	.91
Blast enginemen	2.90	1.37

The Haarmann Core Oven.

G. Haarmann & Son, Holyoke, Mass., are putting on the market a new type of core oven, the portable form of which is shown in the accompanying illustration. The cores are placed on a set of swinging shelves, each in the form of a quadrant and operating independently of the others, enabling the operator to remove the contents on a single shelf without lowering the temperature of the oven, or hindering in any way the baking process on the other shelves. Each shelf has two doors, one at each radial edge, the rear door closing the opening when the shelf is swung open, thereby retaining the heat in the oven. The front is of cast and wrought iron, and the sides, back and top are of double galvanized iron with 1-in. air space. Four doors are each 5 in. high and one 10 in. high, but they can be furnished to any desired dimensions. The bottom of the oven is double, and the top portion has holes which serve as flue passages. The entire hight of the oven is 60 in., width 40 in., depth 40 in. The area of the firebox is 130 sq. in. and the weight about 800 lb.

The same principle of design is applied to a stationary core oven, to be set in brickwork. The front doors and shelves are put together ready for setting, but no firebox is furnished, many foundrymen preferring to employ their own ideas as to heating. The entire hight of this type is 65 in. and width 48 in. There are six doors 5 x 32 in. and one 10 x 32 in. The weight is about 1100 lb.



The Improved Portable Core Oven Built by G. Haarmann & Son, Holyoke, Mass.

Supplementing its established testing department, the Standard Roller Bearing Company, Philadelphia, has secured Henry Souther of Hartford, Conn., to devote a large part of his time to its interests as consulting engineer. Mr. Souther's services had been employed to some extent by the company, and the new arrangement is the outcome of the satisfactory results obtained in the betterment of its product.

A meeting of the Stove Founders' National Defense Association, held at the Hotel Astor, New York, January 21, ratified the action of the Chicago conference of molders and stove founders, establishing a basic rate of $4 a day in pricing work made on molding machines, and providing for the operation of machines by journeymen molders or by apprentices under the established ratio of the latter.

British Engine Builders' Consolidation.

British builders of large engines have under consideration a plan for consolidating some of the important engine building firms on the northeast coast of England. At the recent meeting of Richardsons, Westgarth & Co., Ltd., which has works at Hartlepool, Middlesbrough and Sunderland, Sir Christopher Furness, the chairman, described the conditions surrounding the manufacture of heavy engines. There is now, he said, intense competition. He cited the fact that the company's once highly remunerative forge department, together with others in the district, is now practically closed, as forgings can be bought cheaper than the cost of producing them. The competition was sure to spread to other departments, he said, unless wise measures were adopted. It was necessary that there be no strikes, that a greater individual interest be taken in the day's work, that contract dates be kept and buyers' confidence restored, and that the cost of production be reduced. He believed any attempt to raise selling prices artificially by combination would fail, as it would sacrifice the good-will of customers, but with a consolidation of interests energies would be centered on progressive construction rather than competitive destruction, and there should thus be decreased cost of production. Each firm now has an expensive staff producing designs identical with those of its competitors. The concentration of the manufacture of standard details would work important economies. Of the size of the companies considering the proposed amalgamation some idea is given in the following statement:

The firms considering this scheme have, during the past seven years, supplied complete engine equipment to 1206 steamships, having an aggregate horsepower of 2,150,000. The detail alone in connection with the yearly output of 172 sets of machinery is enormous, and were it standardized and manufactured under modern conditions profits would be obtained which, under the present conditions, are quite impossible. In view of the highly progressive nature, not only of the manufacture of marine and other machinery but also of its design, every single builder is now constantly face to face with heavy expenditures for plant in order to keep pace with the times. Take another example: since this company was formed, seven years ago, we have spent £133,000 in new machinery and buildings, besides another £140,000 or thereabouts in maintaining our three works in a high state of efficiency, this expenditure being entirely apart from the cost of our turbine works, which are practically

independent and constitute what is to us an entirely new business, and which have involved an outlay of fully £50,000. We are, of course, not alone in this expenditure, as all firms recognize that it is necessary for their very existence, and heavy as it is now, it will undoubtedly become more so in the future by reason of the ever increasing severity of competition throughout the industrial world.

Unparalleled Strike Losses.

The conditions resulting from competition in the engine building trade have been accentuated in the past year, as Sir Christopher Furness points out, by the disastrous strike of British machinists.

The past year has been one of the most disastrous in the annals of the Northeast Coast, involving as it did the practical stoppage of the engineering industry for no less than seven months by the engineers' strike, this in our own case being preceded by partial stoppage and complete disorganization owing to sectional strikes in the shipyards. We have lost, in fact, an entire year, and the immense efforts we have made in laboriously building up additional branches to our business by the creation of new departments for the manufacture of steam turbines, pumping machinery, steel works' equipment and electric installations have been ruthlessly upset by one of the most ill-advised and calamitous strikes on record. The general public has grown so accustomed to the continuous succession of strikes that nothing short of the stoppage of the nation's railroad system or coal supply creates more than ordinary interest, but the alarming fact remains that British industries are being jeopardized and British capital destroyed to an extent unparalleled in British industrial history. Take our own case as an example. We have three works, in Hartlepool, Middlesbrough and Sunderland, with staffs of highly trained technical experts for the conduct and development of our various manufactures, each department having an organization of designers and draftsmen complete in itself. To supervise the actual manufacture there is a further organization of works managers, departmental foremen and assistants, and in addition the usual commercial and clerical staffs, numbering in all some 250 men, whose services cannot, of course, be dispensed with the moment the general body of employees decides to go out on strike. At the commencement of the strike it also happened that we had an unusual number of important contracts in process of erection in various parts of the kingdom, and at a stroke everything was brought to a complete stoppage, this being followed by the virtual paralysis of our entire business for seven weary months, each successive month bringing possibilities of settlement by various proposals, including the intervention of the Board of Trade, whose good offices were so flouted by the men as to result in the resignation of Mr. Barnes, the general secretary of the Amalgamated Engineers' Society. For ourselves, we were compelled to see our profits turned into losses, grass actually growing in our yards, our customers disappointed and disgusted, and our prospective business brought to a dead standstill by reason of our inability to accept orders. In the town, as you know, men were brought to beggary, women and children to the verge of starvation, and tradesmen's savings reduced almost to vanishing point. This, then, is the sorry picture of a strike for which there was no justification whatever and which was blindly persisted in notwithstanding many friendly efforts, including those of a Cabinet Minister and the men's leaders. We are still among the wreckage, but let us hope that this epidemic of strikes is over, for otherwise it will be quite impossible to maintain the prosperity which has hitherto been associated with the engineering industry on this coast.

The Working Requirement of the English Patent Law.

The following digest of the second decision under the new English patent law has been furnished by John D. Morgan of the New York patent bar:

The British Comptroller General has handed down his second decision under section 27 of the new patent law. This is the section containing the much discussed working requirement. Under this clause, as will be remembered, the ground for revocation is "That the patented article or process is manufactured or carried on exclusively or mainly outside the United Kingdom." The section empowers the comptroller to revoke the patent, "unless the patentee proves that the patented article or process is manufactured or carried on to an adequate extent in the United Kingdom, or gives satisfactory reasons why the article or process is not so manufactured or carried on."

The essential facts in the case were as follows: A certain sewing machine is patented in the United States and Great Britain, but not in Germany. The sewing machines were manufactured in the United States, and imported into England. There certain parts were manufactured and substituted in the machine for certain of the original parts. In addition, certain attachments were manufactured in England and placed upon the machine. Revocation of the patent was applied for by the agents of German manufacturers who were making the machine in Germany, in view of the fact that there was no patent protection in that country.

The comptroller first considered the question whether partial manufacturing and partial assembling in England constituted manufacturing to an adequate extent in the United Kingdom. He decided no. He expressly stated that he disregarded the manufacture of the attachments as being irrelevant.

The patentees urged in their own defense the fact that the machines had been made in one factory for many years and under especially favorable conditions for the highest grade of product. The comptroller decided that this was a mere matter of their own convenience and to be disregarded.

The patentees in their defense urged that if the patent was revoked "the country would be flooded with German and other continental imitations of their machines," and further, "we should very much regret to see the public put off with machines which . . . are very much inferior to this one." This might be construed as an intimation that the statute destroys the rights heretofore enjoyed under the common law doctrine of unfair competition in trade. The comptroller, however, concluded that users in Great Britain "should have the opportunity of testing the qualities of some of these much maligned German sewing machines, which cannot be brought into this country so long as the patent remains in force."

As in the previous case, the decision is very properly on the particular facts. But, bearing this in mind, it is still my judgment that no mere assembling in Great Britain, or partial manufacturing and assembling there, would be regarded as a compliance with the law. As in the first case, foreign equipment, facilities and investment are dismissed by a mere wave of the hand.

It will be noted that the comptroller regards with great equanimity the pitting of German and American manufacturers against each other in the English market through the revocation of a British patent to patentees of either country. This feature of the case may, however, receive some check, should pending negotiations between the United States and Germany proceed to fruition. The comptroller, however, appears to lay down one general principle, as follows:

The power to defer the revocation for a reasonable interval was, I take it, given to the comptroller for the protection of patentees who of their own accord have taken substantial preliminary steps—*e. g.*, by the purchase of sites and the erection of factories—to comply with the requirements of the act; but have had not sufficient time to complete their works and actually manufacture the patented article before an application is made to revoke their patent. Here it appears that the patentees have taken no steps whatever with a view to meeting the requirements of the section, although more than 16 months have elapsed since the passing of the act.

This decision follows directly in the line of the prior decision and discussion, and merely emphasizes the belief that the law will be rigorously enforced along the lines intended by its framers.

The statement in these columns, January 14, that construction work on the main building of the Ohio Seamless Tube Company's plant at Shelby, Ohio, has been completed by the McClintic-Marshall Construction Company of Pittsburgh, and that the structure is 160 x 180 ft., is misleading. This building is only an addition to the piercing and rolling mill department to take care of the additional rolling mills and electric power equipment. The main building of the plant, which is to be used for cold drawing and finishing shops, is 100 x 360 ft. The other buildings include a hot work piercing and rolling shop, 130 x 220 ft.; gas producer plant, 25 x 40 ft., and annealing furnaces, 30 x 80 ft.

The Fort Pitt Spring & Mfg. Company, Pittsburgh, manufacturer of coil and elliptic springs and vanadium steel springs, plant at McKees Rocks, Pa., reports that it is now employing a day and night shift, having received some large orders for railroad springs. The company expects to continue operating its plant in this way for some time to come.

The Summers Ore Car.

A new type of ore car that is self-clearing and positively dumps all of the load, has been developed by the Summers Steel Car Company, Pittsburgh, Pa. In the spring of 1908, a sample car, Fig. 1, was shipped to the Duluth & Iron Range Railroad Company for trial, as a result of which an order has been placed for 800 of these cars for early spring delivery. The cars as ordered have some slight changes from the sample car, but the general arrangement of the operating mechanism remains practically the same.

The following dimensions, description and the drawings given in Fig. 2 refer to the cars as ordered:

Capacity	50 tons, 820 cu. ft.
Length over dead wood	22 ft. 4½ in.
Length face to face of coupler knuckles	24 ft.
Length center to center of trucks	15 ft.
Length inside of car body	17 ft. 5 in.
Truck wheel base	5 ft.
Hight top of rail to top of car	9 ft. 5 in.
Width outside of car body	8 ft. 7 in.
Width inside of car body	8 ft. 6 in.
Discharge door opening	5 ft. 6 in. x 8 ft. 6 in.

Two doors, made of heavy pressed steel, close the opening in the bottom of the car. As the door opening extends partly over the inner truck wheels, the ends of the doors are flanged upward to permit their opening downward without obstruction by the wheels. The side and end sloping floor plates have an inclination of 50 degrees with the horizontal. The end floor also has its side portion turned up at an angle conforming with the side floor slope, with the result that the ore over the end floor plate is not changed in cross section, as it slides out, until it reaches the door opening. The doors open downward to such a degree that the resultant angle between the side and end sloping portion of the door is 50 degrees with the horizontal. The top flanges of the

Fig. 1.—The First of a New Type of Ore Car Built by the Summers Steel Car Company, Pittsburgh, Pa.

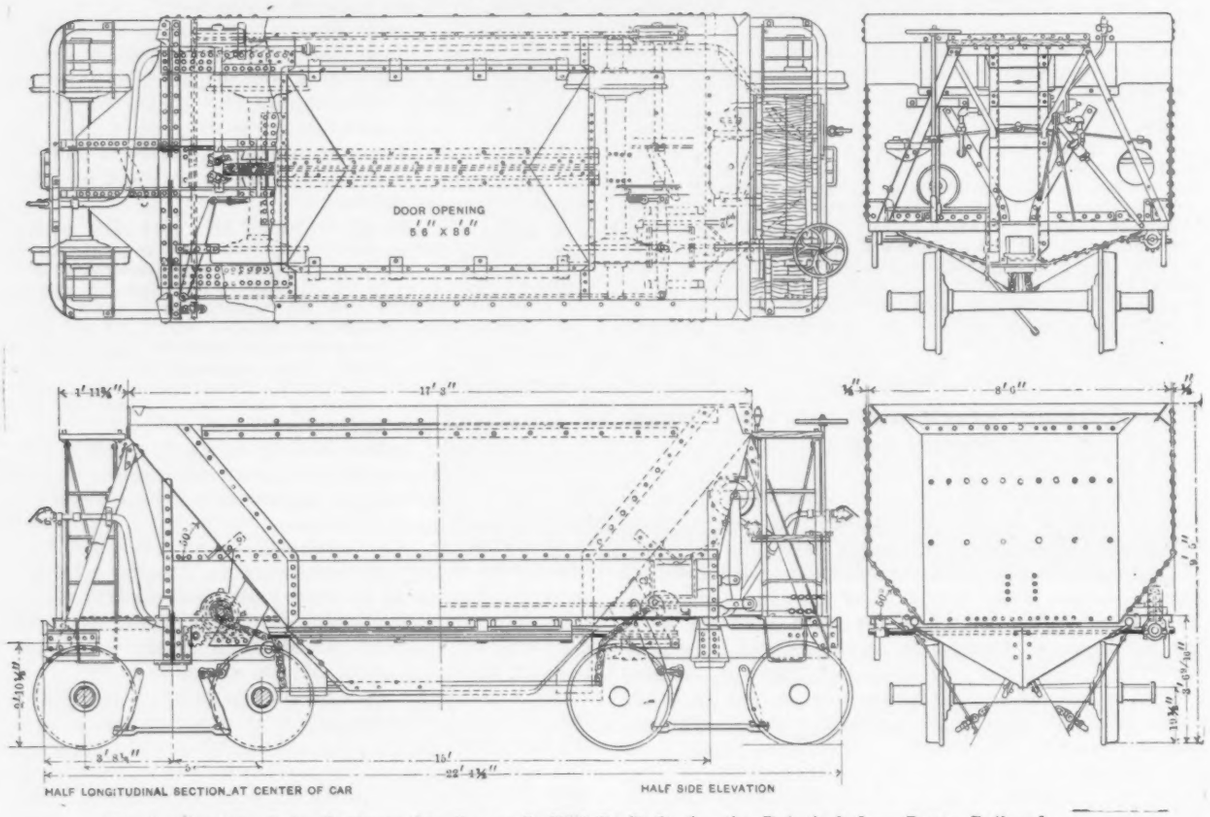


Fig. 2.—Details of the Summers Ore Car as It Will Be Built for the Duluth & Iron Range Railroad.

side and end sheets slope inward and downward at an angle of 50 degrees with the horizontal. With the door opening so wide both transversely and longitudinally of the car as to break the bridging effect of the ore, the portion of the load over the doors immediately falls out when the doors are lowered and is followed with that over the side and end floors which are of such an angle that the load slides off.

Each door is supported at its outer edge by four heavy hinges, and at both ends by ¾-in. chains. These chains are attached to and wind around a steel drum on a 2½-in. steel shaft, which is held from rotation and is actuated by a worm gear. The worm gears are at the side of the car and have a common shaft actuating both worms in unison. A cross shaft, just back of the body bolster, extends from side to side of the car, and is geared with miter gears to the worm shaft; this cross shaft provides a means of operating the doors from either side of the car by the use of a crank on the end of the shaft. The worm gears hold the doors in any position from closed to full open, requiring no other latch mechanism; this enables the operator to open the doors slowly and prevent the whole load from dropping out at once, which might by its impact damage the dock.

The present equipment of the ore carrying roads in the Northwest require from six to ten men to unload a car, which is accomplished by a number of the men getting on top of the load and poking the ore out with iron bars, while others pound the car sides to jar the ore down. With the new car one man can discharge the load and close the doors within 2 min., and is not required to get on the load at all. This will mean the difference between carrying on full operations during the rainy weather with the new cars, and only partial operation with the old ones, as men will not get up in the ore while it rains.

A peculiarity of the new car is the lack of center sills; the draft sills terminating at the door opening. The buffing and tugging shocks from the engine are transmitted to the sides of the car through horizontal side girders, which are attached to the tops of the draft sills, and to the car sides, which sides have their lower portions formed into triangular shaped columns and which take the place of center sills.

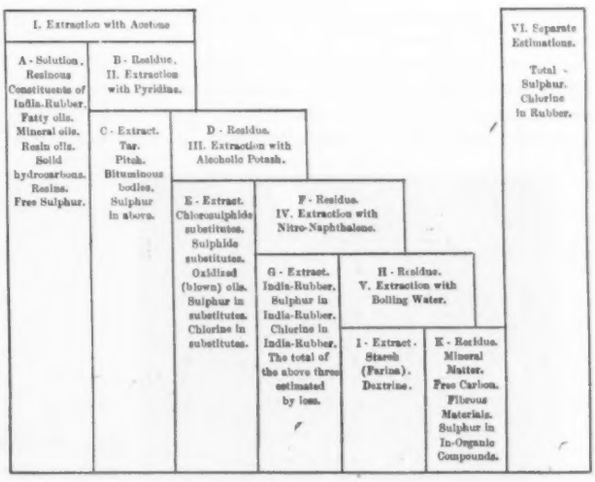
The United States Steel Corporation has for several years been using cars of similar construction for handling refuse materials. Their excellent service and low maintenance cost gives confidence in the durability of the new ore car. E. W. Summers, president of the Summers Steel Car Company, is the designer and patentee of both of these cars.

Rubber Goods Analysis.

BY RANDOLPH BOLLING.

The loading of rubber goods used in manufacturing establishments with zinc oxide, lead sulphate, calcium sulphate, &c., and the employment of the so-called "rubber substitutes" mixed with good rubber call for close inspection of the works chemist in order to determine the value of the samples and materials received. The great ease with which pure rubber lends itself to adulteration must necessarily make it a commodity of uncertain value in the manufactured state unless it has been chemically analyzed for the consumer, and its quality and the extent of its loading definitely known. The following method of analysis is recommended:

Cut off a foot of the hose or of the insulated wire. In the first case, peel off the canvas by making an incision longitudinally, and carefully separate the different layers of rubber. With electric wire make the incision, peel off the tarred canvas covering, and then remove the rubber from the tinned copper wire. With sharp scissors cut the rubber in thin strips, reserving about half for tensile and elasticity tests. These thin strips must next be cut into small bits about the size of No. 7 shot. The rubber is now ready for analysis. A half gram is weighed into a 200 c.c. flask and heated with red fuming nitric acid for some time on the hot plate until all organic matter has been decomposed, and the total sulphur determined by the usual precipitation as barium sulphate. This determination is important, as the difference between the total and combined sulphur gives the per cent. that has been actually used for vulcanization. Free sulphur should not be excessive, and indicates either that improper methods were used in vulcanizing or that an excessive per cent. of substitutes was employed. Rubber substitutes are interesting, but have not tended to replace the natural rubber. They are made under the shadow of the mystery room in the factory, generally by macerating scrap and compressing with hydro-carbons. There is no devulcarining process to convert scrap back to new rubber. Appended is a scheme for the analysis of india rubber articles:


I. Extraction with Acetone
A - Solution. Resinous Constituents of India-Rubber. Fatty oils. Mineral oils. Resin oils. Solid hydrocarbons. Resins. Free Sulphur.
B - Residue. II. Extraction with Pyridine.
C - Extract. Tar. Pitch. Bituminous bodies. Sulphur in above.
D - Residue. III. Extraction with Alcoholic Potash.
E - Extract. Chlorosulphide substitutes. Sulphide substitutes. Oxidized (blown) oils. Sulphur in substitutes. Chlorine in substitutes.
F - Residue. IV. Extraction with Nitro-Naphthalene.
G - Extract. India-Rubber. Sulphur in India-Rubber. Chlorine in India-Rubber. The total of the above three estimated by loss.
H - Residue. V. Extraction with Boiling Water.
I - Extract. Starch (Farina). Dextrine.
K - Residue. Mineral Matter. Free Carbon. Fibrous Materials. Sulphur in In-Organic Compounds.
VI. Separate Estimations. Total Sulphur. Chlorine in Rubber.

Scheme for the Analysis of India Rubber Articles.

At first glance this analytical scheme looks quite formidable, but in practice it will be found easy to carry out. It is, of course, based on the action of different organic chemicals having certain solvent properties on india rubber. The application of this scheme calls for repeated use of the soxlet apparatus, extraction with acetone, pyridine, alcoholic potash, nitro-naphthalene and water, and should be carried out in a soxlet that allows the thimble holding the rubber sample to be heated with the hot ascending vapors of the boiling solvent. This is most important. A good weight of rubber to begin on is 5 g., and the A extraction should be started with 150 c. c. of acetone, and allowed to run 10 hr. Working on rubber calls for close observation; the color of the A extraction, in a great measure, classifies the goods. If it is a nice clear solution, with a good ring of sulphur around the top edge, one is safe in believing that this sample is free from rubber substitutes. If, on the other hand, a muddy, dark colored extract without much of a ring is obtained, one can safely count on the rubber being extensively doctored with substitutes. After extraction the solvent is allowed to evaporate and the residue weighed, then oxydized with red fuming nitric acid and the free sulphur determined.

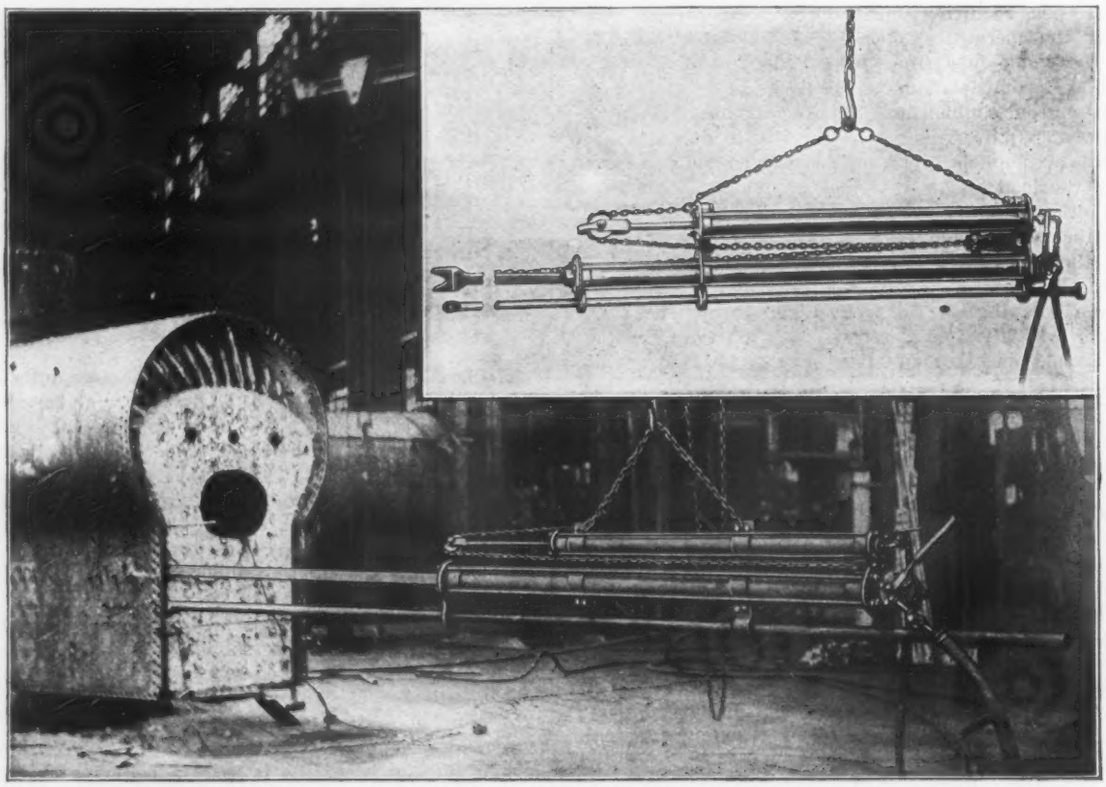
Next is the pyridine extraction. The alcoholic potash (Extraction III) calls for no special comment. Chlorine is, of course, precipitated as silver chloride and weighed. The Extraction IV, with nitro-naphthalene, calls for some special directions. The rubber is transferred to a short necked 200 c. c. flask, and heated in a copper air bath with 25 g. of nitro-naphthalene at a uniform temperature of 360 F., until every particle of rubber is dissolved. This takes two days sometimes, and when analyzing rubber erasers containing 75 per cent. of mineral matter, it has taken four days to dissolve all the rubber. It will dissolve if sufficient time is allowed. The residue is washed with hot benzol, dried and weighed. This filtration is best done on a platinum Gooch crucible, and the solution is now ready for the hot water treatment under Extraction V.

Tensile tests are not very satisfactory. While they show the physical character to some extent, they do not show the methods of manufacture and the character of the rubber used. The chemistry of rubber is exceedingly interesting, and since it has been rather obscure, it is hoped that this article will act as a guide to investigators in this most important article of commerce.

The Lane Staybolt Cutter.

The difficult, tedious work of cutting out staybolts to remove fireboxes from locomotive boilers is one of the most disagreeable and expensive operations in railroad repair shops, when done with the crude tools which are still largely employed for it. The pneumatic machine here illustrated, which is designed to break staybolts preparatory to removing fireboxes from boilers and to cut bolts and rivets in dismembering steel bridges and buildings, was invented by Grover S. Lane, a machinist in the shops of the Chicago, Rock Island & Pacific Railroad at Silvie, Ill., where for more than a year one of these machines has been in almost constant service, with satisfactory results.

The machine consists of two parallel cylinders securely joined together with a valve attached to the rear end of each cylinder. The valve on the shorter cylinder serves merely as a cut off lock, with vent ports in one side of the



The Lane Pneumatic Machine for Cutting Off Staybolts, Made by Williams, White & Co., Moline, Ill.

housing or case, while the valve at the back of the longer cylinder is a special quadruple acting valve and constitutes one of the special features of the machine. Fitted in the long cylinder is a 100-lb. striker sledge, which drives the cutting bar. The rear end of the latter is reinforced with a welded boss to withstand the blow. A hose carrying compressed air is attached to each cylinder. By means of a chain and shieve the piston of the short cylinder is made to hold the machine firmly against the cutting bar, forcing the latter up solidly against the bolt; in this manner the cutting bar is moved forward, automatically, taking up slack as the bolt yields in breaking. The valve on the long cylinder is so constructed that by moving the handle in one direction a large port is opened admitting compressed air behind the striker, driving it forward with great force against the striking end of the cutting bar.

The machine is suspended from a crane or tripod, and may be conveniently applied to various operations, such as backing broken pins from engine drivers or other work where continuous heavy striking is required, and where a supply of compressed air is available. While simple in its construction and operation, the machine is said to render very efficient service. It is stated that 38 staybolts, 15-16 in. diameter, have been broken in 3 min., and it is conservatively estimated that with one-third the help three times as much can be accomplished as by the old method.

This tool is manufactured by Williams, White & Co., Moline, Ill., who recently received an order for one of them from a railroad company in Mexico.

The Foundry Exhibit at Cincinnati in May.—C. E. Hoyt, Lewis Institute, Chicago, secretary of the Foundry and Manufacturers' Supply Association, has sent a preliminary announcement to the membership concerning the exhibit of foundry machinery and appliances to be held in connection with the convention of the American Foundrymen's Association at Cincinnati, in the week beginning May 17. It is stated that the Cincinnati Convention League, Will Finch, secretary, has undertaken to provide the south wing of Music Hall, known as Horticultural Hall, for an exhibit of one week, with the use of the hall in the week preceding for the receipt of exhibits and in the week following for packing and shipping. For such exhibits as cannot be taken care of in Music Hall owing to fire risk, a temporary building on the banks of the canal in the rear of Horticultural Hall will be provided. A meeting of the executive committees of the four associations which join in the annual foundrymen's convention, will be held in Cincinnati, February 5, for the completion of arrangements. Soon after that date a plan of the exhibit buildings will be sent out to foundry supply and machinery firms, together with a scheme for awarding space simultaneously to all members of the Foundry and Manufacturers' Supply Association.

It has been estimated that in December and the first two weeks of January, the new bonds put out by corporations, chiefly the railroads of the country, amount to $250,000,000—a new record for that length of time. The output of long-time bonds in all of 1908 was but $800,000,000, so that the amount of new securities recently marketed in six weeks was over 30 per cent. of the offerings for the entire 12 months. It is estimated that 75 per cent. of the $250,000,000 is already lodged in investment channels. At least 80 per cent. of this new financing simply represents refunding operations—the changing of securities from the form of short-time notes to long-time bonds, or providing ahead for bond issues to mature within the near future. The gist of this fact is, of course, that the railroads and industrial companies have not yet begun to provide new cash for development and expansion. This form of financing is yet to come.

New Publications.

Report on the Mining and Metallurgical Industries of Canada, 1907-8.—Dominion Department of Mines, Mines Branch, Ottawa. Eugene Haanel, Director. S. Groves, Editor. Pages, 972; 6¾ x 9¾ in. Price, $1.

The report is in pursuance of the Geology and Mines act of 1907, providing for the collection and publication of full statistics of the mineral production and of the mining and metallurgical industries of Canada. A special staff of investigators was appointed to gather information by personal visitation to the various mines and manufacturing plants. The services were also enlisted of geologists and engineers having special knowledge of particular districts. The undertaking was certainly ambitious, and the result is an admirable summary of the mining and metallurgical operations of the Dominion of Canada. The expenditure evidently required for so prodigious a work illustrates to how great an extent government aid has been available for the development of Canadian industries.

As an example of the scale on which the present work has been carried out two descriptions of iron and steel plants may be cited—namely, those of the Lake Superior Corporation, at Sault Ste. Marie, Ontario, and the Dominion Iron & Steel Company, at Sydney, Nova Scotia. To the blast furnaces, steel plant and Helen iron mine of the former company eight pages are devoted, in addition to six full page plates giving views of the works. The pig iron production of 1906 at the Soo blast furnaces was 130,902 tons, and the steel rail production 159,740 tons. The output of the Helen mine in 1906 was distributed as follows: To the Algoma Steel Company, 29,444 tons; to the Hamilton Steel & Iron Company, 37,966 tons; to various furnaces in the United States, 54,145 tons. The ores secured from the Helen mine are described as a hard compact red hematite containing 60 per cent. metallic iron, a hard brown limonite containing 57 to 58 per cent. iron and a soft brown limonite containing 53 to 54 per cent. iron. No more ore is now raised from open pits at the Helen mine, all mining being conducted under ground. The system of mining is similar to the room and pillar method in coal mining. The main drift is run down the whole length of the ore body, which is about 700 ft., and drifts are run at right angles to it. Raises are made from these cross drifts for manholes and the ore is stopped from the chambers by the overhand method. The system in general is similar to that used in the iron mines of Minnesota. At the time the report was written about 500,000 tons of ore was in sight on the first and second levels, and a third and fourth level were being prepared for production.

The description of the Dominion Iron & Steel Company's properties takes up 13 pages, and there are in addition four pages of illustrations, including a folded insert giving a panoramic view of the plant at Sydney. The general features of this plant are well known. An interesting statement is that of the cost of iron ore (averaging 49 per cent. metallic iron, 16.83 per cent. silica, 0.834 per cent. phosphorus and 1.5 per cent. moisture) from the Wabana mines, Belle Island, Newfoundland, delivered in stock bins at Sydney. The small allowance for royalty is surprising. The items are as follows:

	Cents.
Mining and transportation to shipping pier	36.3
Loading in steamer	0.5
Freight by steamer to Sydney	30.5
Unloading at Sydney	3.6
Allowance for dockage at Sydney	5.9
Allowance for royalty	5.0
Total	81.7

At the Sydney plant and at Marble Mountain, where its limestone quarries are located, the Dominion Company employs about 4000 men in seasons when weather conditions do not obstruct the work. The average wage per day of all classes of labor is $2. The lowest wage is 14 cents an hour to unskilled men, while some classes of skilled labor are paid $5.50 to $6 a day. The Bessemer converters for the duplex system were not installed at Sydney until 1907, hence no data are given as to results with the system.

The other Canadian iron and steel works are given space in proportion to their importance measured by product. Nearly all these descriptions are illustrated with full page views. All the metallic and nonmetallic mineral properties now operated in the Dominion are dealt with, as well as the metallurgical and clay working industries. No less than 144 engravings and drawings are given, including mineral maps of the respective provinces. The last named are up to date as regards the topography of Canada, and on them are located the known metallic ore and commercial mineral deposits thus far worked. A historical sketch precedes the industrial review of each province, and details are given of the equipment and mode of operation of every important mine or other plant, together with the capitalization and organization of each company. In the index 1500 names of owners or companies are recorded alphabetically. The historical notes, geological data, analyses of materials, descriptions of equipment and statistical tables make the volume exceedingly valuable. Not only does it bespeak the great diversity and extent of the mineral resources of Canada, but the high character of the engineering talent that has been expended in their development, as well as in the investigations which were the basis of the present report.

Smoley's Parallel Tables of Logarithms and Squares, by Constantine Smoley, C. E. Fifth edition, revised. Published by the Engineering News Publishing Company, New York. Size, 4½ x 7 in.; 130 pages. Flexible leather binding. Price, $3.50.

With the additions which have been made to this latest edition, the book becomes, in the words of the author, "a universal calculator," useful in making computations involving either English or metric measures and covers all classes of technical work not requiring tables of over five decimal places. As now published it contains parallel tables of logarithms and squares, angles and logarithmic functions corresponding to given bevels, and a complete set of five decimal logarithmic trigonometric tables. The latter is the most important addition and comprises the following separate tables: Common logarithms of numbers from 0 to 10,000, with tables of proportional parts; logarithms of the sine and tangent from 0 degree to 3 degrees, and of the cosine and cotangent from 87 degrees to 90 degrees, varying by 10 seconds, with proportional parts for single seconds; logarithms of the sine, tangent, cotangent and cosine for each minute of the quadrant, with proportional parts in seconds, and natural functions. The table of logarithmic functions has a new arrangement permitting larger type and clearer distribution of it and relieves the eye of the mass of figures concentrated on the pages of the old arrangement. To this edition has also been added a multiplication table for rivet spacing that will be found of considerable value. The convenient size and gathering together in one book of those tables most used by engineers, architects and students make of it not an acquisition to the library of the user, but a well nigh indispensable desk companion, taking the place of the bulkier books through which such tables are customarily scattered.

Mechanical World Pocket Diary and Year Book for 1909. Twenty-second year of publication. Published by Emmott & Co., 65 King street, Manchester, England. Size, 4 x 6 in., 395 pages. Cloth. Price, sixpence net.

This is in substance a yearly revised engineers' pocket book containing a collection of useful engineering notes, rules, tables and data, and in addition blank pages to be used for a diary and memoranda. In this twenty-second issue the section on steam turbines has been rewritten and extended, a section on friction clutches has also been rewritten and made more comprehensive, a section on chain driving has been introduced, and a note on the graphic calculation of movements of resistance of beams has been added. While this book is an English publication and treats of the various subjects from the standpoint of British practice, the bulk of the information, since the underlying principles are the same the world over, will be found of quite as much value to American engineers who also use the English system of weights and measures.

The Tariff Fight of the German Independent Mills and the Steel Syndicate.

Some of the phases of the controversy between the German Steel Syndicate and the Association of Consumers of Pig Iron and Steel Billets are well brought out in the rejoinder of the latter to the earlier reply of the former to the proposal made to the Government authorities to remove the duty on pig iron, scrap and steel. We are indebted to Carl Loehr, Christinenhuette bei Meggen, Westphalia, for a copy of this elaborate document.

The Association of Consumers of Pig Iron and Steel Billets first submitted a memorial which recommended the introduction of drawback certificates, the belief being prevalent then that the removal of the duties on pig iron, scrap and steel billets would have little chance. But as the drawback system of refunding duties on imported raw material when exporting finished iron and steel manufactured therefrom was only a palliative measure, and might be defeated by international syndicate agreements, it was decided to demand the removal of the duties. The grievance of the independent open hearth plants and rolling mills against the German Steel Syndicate is that the great works grouped together in that organization are utilizing the duties on pig iron and steel to kill off the small independent mills by holding the raw and semifinished material high and competing sharply, at low prices, with them, in those products like bars, plates and sheets, which are not syndicated.

Duties Utilized by Large Works to Crush Smaller Ones.

The memorial disclaims any desire to oppose protective duties, or the duties on iron and steel. The petitioners claim that duties on pig iron, scrap and steel do not serve to protect the domestic industry, but that instead of being necessary to the large syndicate works, they are utilized by them to crush the competing independent plants, who must rely upon the open market for their supply of pig iron and steel billets. The large works do not pay any duties. To a large extent they control their own ore and their own coal, and upon that foundation build up their entire output to the finished iron and steel. Those of them who do not control their own ore may, since there is no duty on ore, purchase the same at the prices prevailing in the world's markets. Beginning with pig iron, there are high import duties which practically exclude the competition of foreign makers.

Since the entire German iron industry must export heavily, therefore the home market prices on all products which are not syndicated are not materially higher than the prices in the world's markets. Usually this difference between domestic and foreign prices is equal to the freight. This is shown by values on bars and sheets. Bar iron has been sold in the home market at 95 to 100 marks, and in the export market at 90 to 95 marks, f.o.b. mill. Plates fetch 106 to 110 marks at home, and 100 to 104 marks abroad, and sheets 118 to 122 marks at home, and 106 to 110 marks abroad. The duties are 25 marks on bars and 30 to 45 marks per ton on plates and sheets. These prices show that products not syndicated, which must seek an export market, are higher in price at home than abroad only to the extent of the freight, an entirely natural position with free competition. It would be entirely erroneous to assume that the protective duty is without effect for such products. It does assure the German market to the German works because foreign competitors, if they undertook to deliver such material to Germany, would have to go below the world's market price to the extent of the German duty. These duties, therefore, are fully prohibitive, without, however, making such material more costly to the industries which work up bars and sheets, or thus weakening their position with reference to their foreign competitors.

Effect of Syndicating on Domestic Prices.

It is a different matter with those products which have been syndicated in order to maintain domestic prices. The object is not alone to utilize the effect of the duties in keeping out foreign competitors, but also to put the home market considerably above the world's markets by common sales agencies or by stopping competition. The Steel Syndicate admits that this increase in the domestic price is equal to the duty. When the domestic price goes above the world's market by the amount of freight and duty, then foreign makers can deliver into German territory because they net the world's market price on such deliveries. This, for instance, explains the deliveries of English pig iron into Germany; they prove that the Pig Iron Syndicate had put up the price in the domestic market above the world's market plus duty and freight. This shows that the German open hearth works, puddle mills and foundries are at a disadvantage, as compared with those plants producing their own pig iron and working it up, to the extent of 10 marks per ton on the pig iron used, that being the amount of the duty. This disadvantage can only be recovered in those cases where the products made from pig iron are themselves syndicated, and are made dearer in the domestic markets to the extent of the duty. Even then the great works who buy only ore, or control their own supply, have an advantage because they manufacture from a duty free material while the works which must buy pig iron have their raw material rendered dearer to the extent of the duty.

The situation is similar with the independent rolling mills. Their raw material, the steel billet, is made dearer to them by the Steel Syndicate to the extent of the duty: that is, at least by 15 marks per ton.

Plans for Relief.

The memorial rejects the possible plan of putting a duty on iron ore, and turns to that of syndicating all iron products and thus putting up prices for the home markets to the extent of the duties. In this way the German import duties would be regarded and utilized all along the line as what the memorial terms "price enrichment" duties. But after repeated efforts to syndicate the finished articles, it has been found that the very members of the Steel Syndicate who put up prices for raw material on the outside mills to the extent of the duty, decline to enter into any pool on bars, or plates and sheets. The outside mills, therefore, claim that the duties on pig iron, scrap and billets are utilized for the purpose of crushing them, and are therefore "oppressive" duties which should be repealed.

The petitioners meet the claim of the Steel Syndicate that a removal of the duties on steel billets, slabs, &c., would break up the Syndicate by presenting a few figures. The allotments of the Steel Syndicate are:

	Tons.
Group A (syndicated)	6,054,084
Group B (syndicated, wire and tubes)	880,478
Group B (not syndicated)	4,937,055
Total	11,871,617

The allotment of steel billets, slabs, &c. amounts to 1,348,755 tons, or 11.36 per cent. of the whole. At the rate of the shipments made during part of 1908 this would be split into 981,036 tons for the home market and 367,296 tons for export, the latter of course sold at the world's prices.

The duty of 15 marks per ton could be utilized on 981,036 tons, which amounts to a total of 14,715,540 marks, or 1.24 marks per ton on the whole tonnage of the Steel Syndicate, a loss, if the duty were removed, which would certainly not imperil the existence of the Steel Syndicate.

Owing to the course of members of the Syndicate there are no pools in various finished products which represent an allotment of 4,937,055 tons of material, or 41.59 per cent. of the total. Of this quantity 4,265,818 tons alone are bars, sheets and plates, on which the home market prices are not increased by the amount of the duty. Deducting 30 per cent. for exports from the total of 4,937,055 tons there remain about 3,500,000 tons on which a duty of 25 to 50 marks per ton is allowed to go unutilized by reason of the attitude of leading members of the Syndicate who will not pool with the outside mills, because they expect to crowd them out of business.

The great steel plants working from the ore and coal up seem determined to cut down the shipments of billets and other forms of crude steel, and do the conversion into finished products themselves. They hold up the price of

billets and cut the market on the product of the outside mills, who buy those billets, the principal lines being bars, sheets and plates. The result has been a steady decline in the shipments of steel billets and other semi-finished shapes by the Syndicate mills. They amounted to 1,910,634 tons in 1905, 1,861,924 tons in 1906, 1,557,873 tons in 1907 and are estimated at about 1,300,000 tons in 1908.

It is claimed that the independent mills would build open hearth plants of their own, and that they should be assured of duty free raw material in the form of free pig iron and scrap, just as the great basic Bessemer plants in the Steel Syndicate have free raw material in the free ore which they now use.

In Memory of Joseph Wharton.

The *Bulletin* of the American Iron and Steel Association for February 1 contains a tribute to the memory of the late Joseph Wharton, from the pen of James M. Swank. As Mr. Wharton had long been a vice-president of the association, and at his death was its president, Mr. Swank's relations with him were most intimate. Probably no other man knew him so well, for certainly few men had so good an opportunity to take his full measure and appreciate so thoroughly his powers, his attainments, his principles and his devotion to the public weal. Following is the greater portion of this masterly memorial, which in its introduction characterizes Mr. Wharton as having been for many years "Philadelphia's first citizen in the qualities and accomplishments that make men really great among their fellows":

Mr. Wharton has been chiefly known to the world as an enterprising and successful manufacturer, but this distinction, although honorable in itself, does not do his memory, now that he is gone, full justice. He was far more than a manufacturer—far more than a mere money-maker. He was a scholar of greatly varied attainments in the sciences, as a linguist, and as a student of classical literature, both of ancient and modern times. He was a chemist, a geologist, a mineralogist and a metallurgist. He was a writer of the purest and the most forcible English prose and a writer also of felicitous poetry that would have attracted attention in literary circles if he had sent it to the magazines or preserved it in book form. He was a connoisseur in art and not entirely lacking in artistic accomplishments of his own. He was not only a forcible writer but he possessed the ability to make a clear and impressive statement before a public audience. He wrote much upon public questions and he spoke often upon educational and other subjects in which his sympathies were enlisted. But he was not a politician. He cared nothing for political honors. He had, however, the grasp and the devotion of a statesman—of a man who loved his country and who studied its best interests and was ever ready to promote them.

Perhaps the most remarkable feature of Mr. Wharton's career is found in the fact that he attained prominence as a man of affairs, as a scholar, as a writer of good literature, as a public speaker and as a statesman, without having in his youth enjoyed the advantages of a liberal education. He was never a student in any college or university. Those who knew him as a man of erect and stalwart frame and had heard of him as an athlete may be surprised to learn the following facts which have been written by his daughter, Mrs. Morris:

> He would have gone to college if he had been strong, but his parents considered health of the first importance; so he was sent instead to a Chester County farm, belonging to Joseph S. Walton, a well-known Friend. From the age of 16 to 19 he worked as a common farm hand, rising at 4 o'clock and sharing in all the heaviest sort of manual labor. During the winter months of these years, when outdoor work ceased, he studied at Boye's Laboratory, on Seventh street, below Arch, and it was here that he laid the foundation of the knowledge of chemistry which was to be a conspicuous factor in his mental equipment.

Mr. Wharton's thirst for knowledge was not checked in any way by the ill health of his early years. He studied French and German at night when on the farm.

Reared a Whig, he was an ardent disciple of Henry Clay's protective policy, which was so ably championed in Mr. Wharton's early years by Horace Greeley and by those eminent Pennsylvanians, Henry C. Carey, Stephen Colwell, Dr. William Elder and Andrew Stewart. In 1868, before he had become prominent as a manufacturer, he assisted in the organization of the Industrial League of Pennsylvania, of which he soon became the active head as chairman of its Executive Committee, composed of himself, Henry C. Lea and William Sellers, with Daniel J. Morrell as president and Cyrus Elder as secretary. The League was exclusively a protective tariff organization. It was at this time that we first heard of Mr. Wharton, and soon afterward we made his acquaintance at Washington. This was in the winter of 1869-70, when the Schenck tariff bill was under consideration, Mr. Wharton, as an officer of the Industrial League, giving to it special attention.

The most important work of the Industrial League related to the repeal of the duties on tea and coffee in 1871 and 1872, and in ineffectually resisting the reduction in 1872 of 10 per cent. of the duties on a large number of articles, but which reduction the league was mainly instrumental in restoring early in 1875. Mr. Wharton was prominent in all this work.

In 1873 the active and effective work of the Industrial League came to an end, and the tariff work which it had been doing was taken up by the American Iron and Steel Association, of which we had become secretary at the beginning of 1873. Mr. Wharton at once manifested a special interest in the tariff work which we personally undertook, with the approval and encouragement, of course, of our official associates. So much impressed were we with Mr. Wharton's zeal and intelligence in the consideration of the tariff problems of the day that at our suggestion he was made the first vice-president of the association in 1875, which position he held and filled most acceptably to all our members until his elevation to the presidency of the association on January 1, 1904.

Soon after Mr. Wharton's election to the vice-presidency in 1875, and particularly after the death of President Samuel J. Reeves in 1878, Mr. Wharton was generally recognized as the spokesman of the American iron trade in all Congressional and other oral controversies affecting our iron and steel industries. From this responsibility Mr. Wharton did not shrink for one moment, and he gave unhesitatingly much of his time to the exacting requirements of this unsought leadership. The iron trade of this country and other great American industries do not know how untiring was his industry and how great was his influence in meeting the assaults upon our protective policy before the House Ways and Means Committee and the Senate Committee on Finance. In these controversies Mr. Wharton displayed great ability and admirable command of his temper. On all these occasions he was a tower of strength to the American iron trade.

His ability was conspicuously tested in the hearings before the Ways and Means Committee on the Wood bill of 1878, the Covert bill of 1880 to reduce the duty on steel rails from $28 to $10 per ton, the Morrison bill of the same year providing for a reduction of many duties, the Tariff Commission bill of 1882 and the subsequent consideration of the bill reported by the commission, for which the weak Senate bill of 1883 was substituted, the second Morrison bill of 1884, the third Morrison bill of 1886, the Mills bill of 1888, the McKinley bill of 1890, the Wilson bill of 1894, and the Dingley bill of 1897. Here were 20 years of hard and unceasing work in behalf of our protective tariff policy, for it should be distinctly understood that Mr. Wharton and the American Iron and Steel Association have always contended as strenuously for adequate protection for all American industries as for fairly protective duties on iron and steel.

Mr. Wharton's carefully prepared contributions to the literature of protection, although unknown to the present generation, were notable at the time of their appearance for their clear presentation of the principles underlying our protective policy and for their literary excellence. We know of no more attractive and convincing treatises upon the wisdom of this national policy than are contained in Mr. Wharton's occasional monographs. "Industrial Competition," published in 1870, is especially

remarkable because of the intimate knowledge it discloses of the tariff policies of other countries. "National Self-Protection" appeared in the *Atlantic Monthly* in 1875 in reply to an article in the same magazine by a noted opponent of protection. "The American Ironmaster" was read at a meeting of the iron and steel manufacturers at Pittsburgh on May 6, 1879. It was only incidentally devoted to a defense of the existing duties on iron and steel. We might enumerate other contributions from Mr. Wharton's pen. All the essays we have specifically mentioned contained apt quotations from German and other classics. Mr. Wharton was familiar with the best German and French literature.

Mr. Wharton's personality had no rough edges. He was genial, cordial and sympathetic always. He was a kind man. He made friends and kept them. While aggressive and insistent when occasion required the assertion of these qualities he never forgot when in normal health his Quaker training of patience, forbearance and equanimity of temper. He was a hard worker all his days, and if he had worked less in his later years he would have been with us yet. He had a manly presence. Our personal relations with Mr. Wharton for almost 40 years fully illustrate the manner of man that he was. We were necessarily much together as officers of the American Iron and Steel Association, his duties being advisory and ours administrative, and yet in all the years when we worked together in a common cause there never was for one moment a single jar. We miss him sorely. A few lines from Longfellow's "Three Friends of Mine" may well end this tribute:

> Good night! good night! as we so oft have said
> Beneath this roof at midnight, in the days
> That are no more, and shall no more return.
> Thou hast but taken thy lamp and gone to bed;
> I stay a little longer, as one stays
> To cover up the embers that still burn.

Joseph Wharton's Achievements.

The following authentic statement regarding some of the achievements of the late Joseph Wharton is taken by permission from James M. Swank's new book, entitled "Progressive Pennsylvania":

The manufacture in this country of armor plate and other heavy forgings for naval vessels is exclusively confined to Pennsylvania. Down to 1904 there had been established only two armor plate works, one at South Bethlehem and the other at Homestead, the first by the Bethlehem Iron Company, and the other by the firm of Carnegie, Phipps & Co., Ltd., afterward the Carnegie Steel Company, but in the year mentioned the Midvale Steel Company of Philadelphia began the manufacture of armor plate. The conception of the project to establish the Bethlehem armor plant, the pioneer plant, originated with Joseph Wharton, the leading stockholder in the Bethlehem Iron Company, the builder and successful manager of the plant being John Fritz, the chief engineer and general superintendent of all the company's works. The first contract for armor with the Bethlehem Iron Company was made by the Navy Dtpartment on June 1, 1887, and the first contract for armor with Carnegie, Phipps & Co. was made by the Department on November 20, 1890. The armor plate industry of this country, both in magnitude and in the character of its products, embodies the highest achievements of American metallurgical skill, and we owe it all to the enterprise and skill of Pennsylvanians. The American navy would have made but a sorry display in our recent war with Spain, if the demand for armor for the "new navy" had not been fully met by the Bethlehem and the Carnegie companies.

Spelter, as crude metallic zinc is called, had never before 1859 been produced in the United States upon such conditions as to encourage the hope that its manufacture would become a staple industry. In 1856 the Lehigh Zinc Company of South Bethlehem, Pa., built a spelter furnace of the Silesian type at its zinc mine, near Friedensville, 4 miles south of Bethlehem, but this furnace did not yield any zinc. Samuel Wetherill, the patentee of valuable improvements in the manufacture of zinc oxide, also experimented at South Bethlehem in the production of metallic zinc and produced a small quantity as early as 1858, but, although he persevered for about two years, and made in all about 50 tons of excellent spelter, the cost of production was too high and his enterprise was abandoned. The first sheet zinc made in this country was rolled by Alan Wood & Sons of Philadelphia from an ingot of Mr. Wetherill's spelter. In 1859 Joseph Wharton of Philadelphia built for the Lehigh Zinc Company, with which he had been associated since 1851 as stockholder and afterward as manager, a Belgian spelter furnace of about 45 retorts, which he operated with the aid of several workmen imported for the purpose. The fuel used was Pennsylvania anthracite, and the ore was obtained from the Lehigh Zinc Company's mine near Friedensville. The spelter produced amounted to 34,063 lb. This successful enterprise of Mr. Wharton was the beginning of the manufacture of metallic zinc in this country as a commercial product. Immediately after this successful experiment Mr. Wharton built at his own risk at the works of the Lehigh Zinc Company a complete spelter plant of 16 Belgian furnaces, which he operated for his own account under lease from the company with absolutely unbroken success until 1863, when he retired from the business.

Mr. Wharton is also entitled to credit as the pioneer in the manufacture of refined nickel. In 1864 he purchased the abandoned Gap nickel mine in Lancaster County, Pa., and from its ore made metallic nickel and nickel copper alloys at works he had erected at Camden, N. J. In 1876 he produced pure malleable nickel, which he made into various useful articles, being the first person in the world to accomplish this result. For many years he was the only producer of refined nickel in this country, his Gap mine, although now virtually exhausted, being for a quarter of a century the only nickel mine in operation on the American continent. Practically, all the nickel that is now made in the United States is obtained from nickel matte produced in Canada. Mr. Wharton's enterprise gave to the Government a cheap supply of nickel that was essential to its nickel coinage, and he gave to the whole country an abundant supply of a metal then much needed for making German silver as well as for coinage, and which is now imperatively needed in much larger quantities for making the nickel steel so largely used for armor plates, gun forgings, &c.

Indiana Towns Pushing for New Industries.

The Merchants' and Manufacturers' Association of Bluffton, Ind., which has added three industries to the city the last three years, has set as its task for 1909 the securing of a manufacturing plant of some kind to occupy the brick buildings which were once the home of the Aurora Clay Company. W. I. Evans is president and Ben Solinger secretary of the association.

At a meeting of the Brazil Factory Promoting Club, Brazil, Ind., the movement to organize a company to construct an independent rolling mill costing $200,000 was indorsed. The company is to be known as the Jones Iron Works. Those interesting themselves in the organization of a company were stockholders in a rolling mill operated successfully at Brazil 20 years ago and which was subsequently bought by the Republic Iron & Steel Company.

The Muncie Industrial Association, organized to promote and to encourage the location of factories at Muncie, Ind., is offering manufacturers as a bonus $100 each for all employees that remain five years, or for the average number of employees for five years. The association has received 553 inquiries from manufacturers concerning the inducements offered.

THE new electric railroad mileage built in 1908 in the United States, Canada and Mexico was 1258 miles, computed as single track road. These figures, published by the *Electrical Railway Journal*, give New York State the lead in mileage with 184 miles, closely followed by Ohio with 171 miles. Pennsylvania is accredited with 114 miles, Texas with 91, and Illinois with 84, while Wisconsin, Colorado and Indiana come close together, having 73 68 and 66 miles, respectively.

Pig Iron Production in Germany.

Statistics of the production of pig iron in Germany, just published show the following comparison between 1907 and 1908, the unit being the metric ton:

	1908.	1907.
Foundry pig iron	2,254,644	2,259,416
Bessemer pig iron	361,472	471,355
Basic Bessemer pig iron	7,627,227	8,494,226
"Steel iron," spiegel, ferro, &c.	934,940	1,034,650
Forge pig iron	635,228	786,113
	11,813,511	13,045,760

The participation of the different districts is shown in the following table:

	1908.	1907.
Rhenish Provinces and Westphalia	4,945,958	5,446,124
Siegen, Lahn and Hesse-Nassau	307,475	889,906
Silesia	928,161	938,658
Middle and eastern Germany	616,530	627,804
Bavaria, Wurtemberg and Thuringia	208,638	202,900
Saar	1,025,556	950,446
Lorraine and Luxemburg	3,481,193	3,989,922
	11,813,511	13,045,760

The principal decline in the production has taken place in basic Bessemer pig iron and has, accordingly, been most striking in the two leading steel districts—the Rhenish-Westphalian and the Lorraine-Luxemburg.

Gayley Dry Air Blast Results.

The following results from the use of the Gayley dry air blast, which have been supplied by Guest, Keen & Nettlefolds of England, and Edgar S. Cook of Pottstown, Pa., illustrate what has been accomplished in two different countries and with different climatic conditions and raw material. The Guest-Keen Furnace is located at Cardiff, Wales. This furnace had just completed its first year of blast on a new lining when the dry air was applied, and was therefore in the best condition to give economical results:

Cardiff Furnace.

Period.	Weekly product. Tons.	Coke per ton iron. Pounds.
Average of first 50 weeks of blast, on natural air.	2,001	2,278
With dry air blast, and operated for increase in output (average of five weeks)	2,530	1,972
With dry air blast, and operated for economy of fuel (average of four weeks)	2,286	1,857
Advantage of dry air for increased output:		Per cent.
Increase in output		26.4
Decrease in coke		13.4
Advantage of dry air for decrease in coke consumption:		
Increase in output		14.1
Decrease in coke		18.4

The above data are given to show the elasticity of the dry air process, as applicable to commercial conditions.

Edgar S. Cook has furnished data from No. 1 and No. 2 furnaces of the Warwick Iron & Steel Company, at Pottstown, Pa., showing results obtained with natural and dry air, in which the dry air is compared with the periods giving the best results on natural air:

No. 1 Warwick Furnace, Natural Air.

Period.	Weekly product. Tons.	Coke consumption. Pounds.	Yield of ores. Per cent.	Av. blast temperatures. Deg. F.
First six months of 1898	1,274	2,320	62.24	1,232
First six months of 1906	1,015	2,760	56.80	1,016

Dry Air.

Period.	Tons per week.	Foundry grade. Per cent.	Yield of ores. Per cent.	Average blast temp. Deg. F.	Coke per ton iron. Pounds.	Moisture per cubic foot air. Dry air. Grains.	Nat. air. Grains.
1908.							
August	1,499	40	56.1	903	2,093	0.72	6.18
September	1,469	25	56.3	911	2,094	0.76	5.13
October	1,497	61	52.7	1,011	1,976	0.98	4.02
November	1,449	95	54.4	1,083	2,181	0.92	2.35
December	1,435	80	53.2	1,111	2,370	0.89	1.71

Mr. Cook advises: "The increased percentage of foundry iron the last three months will be noted. This was low silicon in October, but higher in silicon the last two months. In November the dry blast was off for 24 hr. for repairs to engines. The iron at this time was 1.60 silicon and 0.04 sulphur. The iron rapidly changed to 1 silicon and 0.16 sulphur, although additional coke was used. It was necessary to use a coke blank to bring the furnace back, and she worked poorly for several days, although the dry blast was on again. In December the work was not good, but it may be said in explanation that over half of the foundry iron made was No. IX, ranging over 3 per cent. in silicon, with some casts over 4 per cent. Experiments were made with various cokes during December. There were 4 hrs. stoppage in one week, which disturbed the work."

Comparisons are also made with natural and dry air on No. 2 furnace, in one case where the conditions of the furnace linings were identical as to wear, and again the dry air is compared with the best results obtained previously in a given period with natural air:

No. 2 Warwick Furnace.

Period.	Tons iron per week.	Grade of iron made. Si.	Grade of iron made. S.	Aver. yield of ore. Per cent.	Coke per ton iron. Pounds.	Aver. temp. of blast. Deg. F.	Moisture. Grains per cu. ft. air.	Cubic foot air per minute.	Cubic foot air per pound coke.
Three months' blast, commencing November, 1904, natural air.									
1904.									
Nov.	2,369	1.34	0.042	53.1	2,575	1,011	4.3	32,600	53
Dec.	2,968	0.81	0.042	55.3	2,208	1,093	3.5	35,200	53
1905.									
Jan.	3,113	1.54	0.047	55.2	2,227	1,144	3.5	35,800	52
Three months' blast, commencing October, 1908, dry air.									
*1908.									
Oct.	*3,045	1.08	0.030	50.0	2,227	1,072	0.98	33,500	49.2
Nov.	3,744	0.70	0.038	51.8	2,021	1,092	0.92	37,300	49.4
Dec.	3,833	0.50	0.038	51.5	2,035	1,062	0.89	38,500	49.6
Best fuel average for three months, natural air.									
1906.									
Feb.	3,742	0.747	0.044	54.3	2,115	1,069	2.4	43,043	54
March	3,147	0.880	0.048	53.7	2,176	1,091	2.7	40,425	53
April	3,400	0.780	0.049	54.3	2,089	994	3.6	40,733	57
Largest iron average for three months, natural air.									
1907.									
Jan.	3,351	0.084	0.042	55.4	2,312	995	3.1	44,198	57
Feb.	3,497	0.790	0.045	57.1	2,305	1,035	2.1	43,659	54
March	3,534	0.790	0.045	57.2	2,320	1,066	3.1	46,431	57
Best yearly average, natural air.									
1906	3,180	0.800	0.044	53.8	2,237	1,022	4.6	41,291	56

* Includes coke used for filling and blowing in. Fuel is railroad weight.

In the above exhibits dry air is placed in comparison with only the best results that had been obtained prior to the introduction of the dry air blast, and it can be readily seen how much more marked the advantages of dry air would have shown over a period of operations under normal conditions.

Taking all the data into consideration—the output, fuel consumption, grade of metal, yield of ore and blast temperatures—the results obtained at this plant by the use of dry air are quite remarkable. The increase in the grade of metal, besides being lower in sulphur, demonstrates that the output can be made with practical precision.

The advantages of the Gayley dry air blast have been fully demonstrated both in this country and abroad, and the time has gone by when any one can doubt the economic merits of this process.

The partnership heretofore existing between George L. Bollinger and Thomas L. Andrews, under the name of the Bollinger-Andrews Construction Company, Pittsburgh, has been dissolved, and will be replaced by an incorporated company under this name. The applicants for the Pennsylvania charter are Geo. L. Bollinger, Thos. L. Andrews, Weaver H. Rogers, J. W. Fisher and J. N. Carey, and the capitalization is $400,000. The concern recently erected a large addition to its structural plant and also built a new foundry for the manufacture of ingot molds at Verona, Pa. The change will provide additional working capital.

The Empire Iron & Steel Company, Niles, Ohio, denies the report published in the daily press that it is about to begin the erection of two additional hot mills.

THE IRON AGE

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The Iron Age Index.

The index to Volume 82 of *The Iron Age*, July 1 to December 31, 1908, will be mailed to subscribers applying for it. A list of those who have received the index heretofore is kept in this office, and to all such the latest one will be mailed without notice from them. Additional names will be put upon this list on request.

The Steel Corporation's Earnings in Hard Times.

It is interesting to refer to the financial showing of the United States Steel Corporation for 1908, in view of the prediction of the economists who made a study of the strength and weakness of industrial consolidations at the end of the last decade for the Industrial Commission, which reported to Congress at that time. They freely said, referring to the steel consolidations, that as they bought few or none of their raw materials in the market their cost would vary little except as labor might be advanced or reduced, and, therefore, the shrinkages in volume of business and in selling prices in times of low demand would tell most disastrously upon earnings. Later, when the Steel Corporation was formed, it was prophesied by these same experts that, while its high fixed charges might easily be met under conditions then prevailing, it would have little power of adjustment when hard times came. The reasoning seemed valid, since experience had been that buyers of ore and coke or of pig iron and semifinished steel always had a recourse in a time of depression, the prices of the materials they bought falling, sometimes farther relatively than those of the things they produced. The view of these prophets was that as the continuance of good times was necessary in order that the high fixed charges of the Steel Corporation might be met and its preferred stock dividend paid, a year of slack demand might even lead to a default on its interest payments.

The first test of the behavior of the corporation under stress came in 1904. Common stock dividends were reduced and later suspended, and while the preferred dividend was regularly paid, this was only done in several cases by drawing upon the surplus accumulated in the two and a half years preceding the memorable October slump of 1903. It will be recalled that the first half of 1904 showed earnings which to many indicated the suspension of preferred dividend payments. In view of these facts comparison may well be made of the slump of 1903-4 with that of 1907-8, in respect of tonnage and earnings. All the data for such comparison as given below are official, except the figure representing the output of finished products in 1908, which is estimated on the basis of the reports made from month to month last year of the percentage of the Steel Corporation's finishing capacity currently in operation:

	Finished products. Gross tons.	Per cent. decrease.	Earnings.	Per cent. decrease.
1903.....	7,458,879	..	$109,171.152	..
1904.....	6,792,780	9	73,176,521	33
1907.....	10,376,742	..	160,964,673	..
1908.....	*6,000,000	42	91,826,520	43

* Estimated.

The contrasts between the two periods of decline are sharp. In 1904, while the amount of business fell off but 9 per cent. from that of 1903, earnings fell off 33 per cent. The decline in prices was the prominent factor then, rather than that in tonnage. Last year production declined about 42 per cent., but the decline in earnings, instead of far outrunning this percentage, is substantially the same. It may be said that this is what might be expected with prices maintained as they were last year. But the fact is that prices, though not slaughtered, were not fully maintained on a single product outside of rails; furthermore, there was practically no reduction in wages or salaries last year, whereas the cuts in wages and salaries in 1904 were general and in some cases of considerable depth.

Details at hand are not sufficient for a close analysis of the two sets of figures, but it must be said that the showing of earnings for last year, under all the conditions, is a thing to marvel at. It points strongly to the attainment of economies in production in the past four years which are a distinct advance upon those the corporation had mastered when subjected to its first testing in 1904. It is to be remembered, too, that the larger percentage of capacity idle last year (with the total producing capacity greater than that of 1907, owing to the absorption of the Tennessee Company and to the completion of new plant), as compared with 1904, constituted a great handicap by increasing the overhead expense per ton of product.

Contrary to the prediction made in its early days, as referred to above, the Steel Corporation last year met all fixed charges, including allowances for depreciation and reserve, paid the same rate of dividends on both kinds of stock that prevailed at the beginning of the year, and in addition carried $10,497,934 to surplus. It is true, the deductions for depreciation last year were not as large as in 1907; it may be assumed that 55 per cent. operation of plant would not call for such severe charging off. But even on the same scale of allowance for depreciation and reserve as in the previous year, and making also the same deduction of $3,500,000 for "special improvement and replacement fund," there would still have been a balance of $1,067,396 for surplus. This for the worst slump in demand in the history of the industry shows ability to cope with adversity that would not be credited save for the actual demonstration. Needless to say, the failure of the co-operative movement among steel manufacturers would have made a different showing; and with or without co-operation, years like 1908 do not yield millions for building Garys.

A machine tool builder was criticised by a customer because the latter, in examining a new machine, found chips and dust in a hidden recessed part. The purchaser remarked that he distrusted a tool made in a shop where such an incident could be possible. The builder considered the suggestion worth acting upon, and since then every recessed part of all machines built in his works

has been painted white. In the preliminary cleaning foreign substances must be removed. This amount of painting, where finish is not a necessary consideration, is a small matter in its relation to costs, while the impression made upon users may be important. In the after life of the machine there is a lessened tendency to let dirt collect in obscure places, because its presence is evident at a glance when the opportunity offers. This leads to the observation that the apparent beginning of an American adaptation of the French fashion of painting machine tools in light colors has not been followed up except in rare cases.

The Railroads' "Next Friend."

The fact that in the first 10 days of 1909 the Railway Business Association added to its membership firms and corporations employing in normal times 39,000 men, indicates that the new organization has not spent its original stock of enthusiasm and that it planned no short-lived campaign. James J. Hill, in his latest public statement on the state of the railroad industry, lays stress on the value of every expression of determination by individuals, or by associations representing great interests, to secure just treatment to railroads and security to capital invested in them. The Railway Business Association has done a work that the railroad companies could not have undertaken for themselves. It has shown the direct connection between employment, or non-employment, for tens of thousands of men in communities scattered over the country and the attitude of legislators and members of commercial organizations toward the railroads. The activities of the association have been greatest in urging its views upon Congressmen and members of the State legislatures and in appealing to boards of trade and other business bodies to pass resolutions calling upon Congress and legislatures to support conservative and constructive measures dealing with railroads. One issue in which the association took an active hand was that raised by the bill of Senator Fulton of Oregon, which provided that no increase in freight rates should go into effect until all protests as to its reasonableness had been passed upon by the Interstate Commerce Commission. Hundreds of telegrams were sent out to members of the association and others, while the number afterward sent to members of the Senate Committee on Interstate Commerce is not known; but the burden of the protest against the bill was that it practically took the rate making power away from the railroads. When the question came on reporting the bill to the Senate, the committee voted 6 to 5 against it. The presumption is that the representations made by the extensive manufacturing interests in the association were a factor in the determination of the question.

The general espousal of the cause of the railroads by those from whom the railroads buy may at times put the association at cross purposes with other manufacturers who consider that freight rate advances are not to their interest. Indeed, some of the very commercial organizations whose co-operation the Railway Business Association is soliciting in its general campaign against hostility to the railroads have taken definite action against freight rate advances. Some discrimination is called for, therefore, as to the specific objects selected for the association's support. Yet so far as concerns its appeal for conservatism in railroad legislation, it will find strong backing from manufacturers' organizations in all lines, as it will in its efforts to give greater assurance to investors in railroad securities.

In using every means to improve the buying power of the railroads it is to be remembered that all educational campaigns require time. The feeling of hostility to the methods of some railroad leaders has been long accumulating, and it will not disappear through a sudden change of front on the part of those who have been responsible for some of the ill-considered legislation of the past three years. But the folly of making the passage of needed regulative legislation the occasion for a general inflammation against railroad companies is sinking into the public sense and is preparing the way for the work of the railroads' "next friend"—the association of manufacturers and dealers who live by what the railroads buy from them.

That there are other factors in the shortening of purchases by the railroads apart from the immoderate restriction upon them needs to be borne in mind. They are suffering from the same troubles that have involved all our industries, and if funds were put at their disposal to-morrow at low rates there would still remain the questions how much of the money could be advantageously spent and what time would be required for the demands of industry to come up to the present traffic capacity. What is significant is that the past 15 months have furnished the antidote for the fever of overprosperity, a malady which it was recognized on all hands could only be relieved by having less business. The conditions are conducive to sane views on all questions growing out of the depression and should set forward every such appeal to reason as that of the Railway Business Association.

British Patents and Their Revocation.

A digest of the decision in the second case of revocation of a patent under the compulsory working clause of the British patent law will be found on another page. This decision seems to establish the precedent that the requirements of the act will not be satisfied by the fact that certain parts of a machine are manufactured in the United Kingdom, while the principal portions are produced in another country. It is an interesting and important feature of the decision that the applicant was a German firm which proposed to enter into competition with the American patentee in the British market, selling German made machines, there being no German patents on the invention.

The decision might have been expected, for the act is clear enough in its meaning that manufacturing must actually be carried on under a British patent, no half way measures being possible under its provisions, if the patentee is to be immune from the danger of losing his monopoly. It will be new to many persons, however, that the applicant for revocation may be a manufacturer or dealer of any country. A German may ask to have the British patent on a British manufacture repealed; an American may cause the revocation of a patent issued to an Italian, and so on, no matter if the applicant has no intention of establishing the industry in the United Kingdom. It is immaterial in the provisions of the law what becomes of the invention after the patent ceases to exist.

This brings out another argument in favor of a compulsory working clause in the American patent law. It would avail nothing to an American manufacturer to seek to obtain the revocation of a British patent, if the patentee was protected in the United States against the manufacturer of the product here. To take a concrete case, a German takes out patents in Great Britain and the United States as well as in his own country. He manufactures exclusively in Germany. An American competitor could cause the patent to be revoked in the

United Kingdom. But the American could not use the patent in his own country, under pain of an action for infringement, and therefore if he was to take advantage of the British law, after the patent had been revoked, he would be obliged to establish the manufacture of the invention there or in some other country where no patent existed. On the other hand, with provisions similar to those of the British law embodied in our own, the failure of the German or French or British patentee to manufacture in the United Kingdom and the United States would be sufficient cause for the annulment of his rights in both countries, and would throw open the British market to goods manufactured here. At the same time, should the American law be amended as suggested, it would undoubtedly be equally easy for the foreigner to secure the annulment of a patent issued here on an invention which was worked chiefly in another country. In the same way a compulsory working clause that would apply equally to worked and unworked patents would benefit foreign manufacturers as well as those of this country, though, of course, not to the same extent.

CORRESPONDENCE.

Navy Yard Management.

To the Editor: I have read with considerable interest the editorial in the issue of *The Iron Age* of December 31, 1908, relative to reorganizing the navy yards, and desire to subscribe to what you say relative to the immediate need of an organization that will enable the nation to build, operate and maintain a navy, not only adequate for the defense of our extended coast line, but also capable of meeting on the high seas, with some chance of success, the combined fleets of any possible coalition of enemies. The Secretary of the Navy has called attention to the fact that the present price per ton of new construction is lower than at any time since the incipiency of the new navy, marked by the contracts for the Indiana, Massachusetts and Oregon in 1890. The approximate contract price per ton of displacement for hull and machinery in the case of the Oregon was about $316, and in the case of the Utah, recently contracted for, about $182. It is not, therefore, to the reduction of the cost of construction that the nation must turn in a search for economy in naval affairs; where then must it look?

A scrutiny of the appropriations for the repairs to the fleets will convince the thoughtful reader that the salvation lies in the reduction of the cost of repairs and maintenance. The appropriations for these purposes under the bureaus of construction and repair, steam engineering, yards and docks and equipment, for certain fiscal years, are given below:

1899	$5,577,000
1904	14,830,000
1909	24,836,000

And it is well known that the expenditures in former years have exceeded the original appropriations, necessitating a deficiency measure. Representative Hobson called attention on the floor of the House of Representatives to the fact that neither Congress nor the newspaper critics had attacked the cost of construction, but rather the organization of the Navy Department and of the navy yards. This has been realized by the Department, and has been presented to Congress in the reports of several secretaries of the navy, as is evidenced by the report for the year 1905, during Secretary Bonaparte's tenure, in which he states: "The system of autonomous bureaus seems to me open in theory to very serious objection, and it is in practice attended with some measure of friction, circumlocution and delay." The Navy Department is fully awake to the situation, but the inertia of the people's representatives in the national legislature is standing in the way.

A board under the presidency of Secretary Newberry (then Assistant Secretary) developed a complete scheme for the reorganization of the Navy Department, and it is apparent from the recent appointment of Chief Constructor Capps as acting chief of the Bureau of Steam Engineering that the Secretary intends to put into operation the plan that is developed as far as can be done under the existing laws.

Let us look for a moment on the navy yard organization of to-day. There are six important departments, four of which deal with repairs to ships, one with repairs and maintenance of yard and shops, and one with stores and supplies for the yard and the fleets. The heads of these departments are subject to the commandant, who is educated in strategy, tactics, navigation and the organization of the enlisted personnel, but not in manufacturing administration or in shop organization. While his education gives him an excellent general grasp of the situation, he cannot be expected to have the thorough acquaintance with details that is necessary for a general manager. As a single example of the interconnection between departments, if an electric generating set is to be installed on shipboard, the building of the foundation is done by one department, the installation of the set by a second department, and the steam and exhaust piping is run and connected by a third department. Is it small wonder that the Secretary of the Navy can accomplish but little in the four years of his tenure? (Without taking into consideration the fact that there have been three secretaries under the present administration.)

You suggest as a possible remedy for this condition a civilian head of a navy yard, and this scheme has been advocated by some very able officers. Why run into the same rock we have already struck in dealing with the Panama Canal? Eminent civilian engineers undertook the job and found that they could not accomplish results on account of their unfamiliarity with the restrictions of existing statutes defining the rights and privileges of those who labor for the Government. The army engineer is filling the breach to the satisfaction of all concerned, except a few disgruntled engineers that would like to have the job.

There exist at present in the navy two corps of experts, educated in engineering specialties, the naval constructors and the civil engineers—the corps of Bowles, of Taylor, of Peary. When the Fore River Shipbuilding Company was struggling against an inefficient organization, it chose both its president and its general manager from the corps of naval constructors. The Newport News Company looked to the same corps for its shipyard superintendent, and the old established Cramp Company for its assistant to the president. The great American submarine expert of to-day is also from this corps. In conclusion, I submit that there is no civilian engineer who can take hold as general manager of a navy yard and run the mechanical establishment as well as can the officers of the present corps of naval constructors and civil engineers, who are peculiarly fitted for this work on account of their familiarity with conditions of Government labor, as well as their technical education.

H. S. WRIGHT,
Naval Constructor, U. S. N.
U. S. NAVY YARD, MARE ISLAND, CAL., January 14, 1909.

The Vanadium Company's Tests.

To the Editor: Obviously my comparison of 12 with 9 is a ridiculously hasty, biased and unfair one, and Mr. Smith deals very gently with it. Leaving this test out and giving 24 and 27 the credit which, when all points are fairly considered, rightfully belongs to them, and which I at first refused to concede to them, the lesson of this table of results to the steelmaker becomes as follows instead of as I had grudgingly interpreted it. For every case where nickel proves superior to vanadium as an intensifier of chromium (23 and 28) there will be four cases where the reverse of this will occur. Moreover, in these four cases the superiority of vanadium over nickel will be in the ratio of 58 to 39½; whereas in the one case where nickel is the superior it will be only as 39½ to 34. It is impossible for any critic, however prejudiced, to shut his eyes for long to the significance of these results. Taken by themselves and ignoring the testimony of Dr. Guillet's tests, they indicate very plainly and unmistakably that the steelmaker is perfectly safe in preferring vanadium to nickel. Still, the criticism

must be made that the Vanadium Company rests its case too soon, and it is to be hoped that it will go on further with the work it has so ably and fairly started. Lower nickels than 1.75 per cent. would be interesting; also elements other than nickel. GEORGE AUCHY.

PHILADELPHIA, January 22, 1909.

A Report on Foundry Accidents.

The Committee on the Prevention of Accidents in Foundries, appointed at the Toronto convention of the American Foundrymen's Association last year, has made a preliminary report through its chairman, Thomas D. West, Sharpsville, Pa. The committee's letter soliciting data on foundry accidents in the United States in the year ending June 30, 1908, was sent out in September last. The number sent out was 6366, and replies were received from 1084, or 17 per cent., which the committee says "is considered not at all bad by those who are familiar with the foundry world." The returns are not quite as complete as the committee desired, not a sufficient number of those reporting separating burns from bruises or giving the average number of men employed in the year, to make it possible to present those items in the statistics.

In 651 foundries reporting there were no accidents in the period named, and the other 433 had a total of 5242, of which 11 were fatal and 424 serious. Of the 433 foundries in which there were accidents, 345 report the cost of providing for the injured, together with the outlay in fatal cases, to have been $29,838, in addition to the value (not stated) of a foundry burned down as the result of an accident due to intoxication. Of the 1084 foundries reporting, 190 spent $48,679 for accident premiums. Concerning the condition of business, 114 reported it dull in the year covered, 302 fair and 71 good. The classification of the accidents reported on is as follows:

	Slight.	Serious.	Fatal.	Total.	No. reporting cost.	Loss.
1. Personal carelessness	1,974	140	4	2,118	123	$10,106.39
2. Careless work	516	39	..	555	33	4,643.25
3. Inattention in shop	227	23	..	250	19	612.00
4. Intoxicants	4	3	..	7	4	*33.00
6. Unavoidable accidents	1,547	159	3	1,709	90	6,858.35
7. Neglect of safety devices	83	7	1	91	9	702.00
8. Disobedience of orders	79	12	2	93	20	3,531.50
9. Taking chances	118	24	..	142	27	2,093.18
10. Inferior materials used	24	4	..	28	5	123.25
11. Employee's ignorance	235	13	1	249	15	1,135.50
Totals	4,807	424	11	5,242	345	*$29,838.42

* Plus a foundry burned down, value not stated.

One foundry in Pennsylvania reports one man killed as the result of smoking, a few days before the beginning of the period covered by the report. The committee says that the use of tobacco may result in an accident, and when least expected, and that many foundries report that they do not allow smoking. Attention is called to the large number of accidents attributed to workmen's carelessness, and it is suggested that some accidents classed as unavoidable, where doubt existed as to the cause, might properly be attributed to carelessness. Much material was sent into the committee bearing on the prevention of accidents in foundries, and a summary of the suggestions will be embodied in a report to be presented to the Cincinnati convention of the American Foundrymen's Association in May.

The Chippewa River Power Company, Port Huron, Mich., has been organized and articles filed for its incorporation. The project contemplates the development of 10,000 hp., which it is proposed to deliver to the principal towns in Midland, Osceola and Saginaw counties. The officers of the company are: J. L. Hudson, president, Detroit; W. F. Davidson, vice-president, Port Huron; W. F. Brown, treasurer, Port Huron, and J. H. Smith, secretary, Port Huron.

The American Supply & Machinery Manufacturers' Association.

At a special meeting of the officers, Executive Committee and Advisory Board of the American Supply & Machinery Manufacturers' Association, held at the Hotel Astor, New York, January 21, a declaration of principles was adopted defining the stand of the association on the question of unfair competition, quality, maintenance and profit protection. It was stated at the meeting that it was necessary for the association to adopt a firm stand, especially on the question of unfair competition. Attention was called to the fact that if members of the association would give their unqualified support to dealers handling the goods of manufacturers who pay special attention to maintaining quality and offering goods so that proper resale prices could be maintained, the effect of such action would be immediately felt. It was decided to urge the members of the association to make it a point in all cases to patronize dealers living up to the principles of the association, believing that such co-operation between manufacturers and dealers will go far toward destroying unfair competition. It was stated that until members of the association give dealers to understand that they will only patronize those who handle quality goods on which a proper resale price is maintained the business of dealers will remain disorganized, and it was decided to urge the manufacturers of the association to impress on the dealers the fact that it is the intention of the organization to carry out the principles adopted at the special meeting which were as follows:

UNFAIR COMPETITION.

We are opposed to unfair competition. This strikes at the wage earner, often compelling reduction in costs of production at the expense of labor. It menaces the dealer by depriving him of the legitimate profits to which he is entitled. It increases expenses of operation and production to the consumer by forcing down the qualities of goods marketed. Its effect on manufacture is to compel changing basis of qualities to meet price conditions, sacrificing reputations to demands thus unjustly created.

We therefore favor such changes in the bankruptcy laws or other legislation as will tend to discourage and prevent that disastrous competition caused by the inexperienced or unprincipled manufacturer, who fails to provide for his actual manufacturing costs, or to allow for a reasonable margin of profits in making his prices, thereby bringing ultimate failure upon himself, hardship upon his employees and loss upon other manufacturers in his line and the public in general.

These and other classes of unfair competition are the stepping stones to fraud, fire and failures.

ENCOURAGEMENT OF HIGH QUALITIES IN ARTICLES MANUFACTURED.

Resolved, That members of this association, when ordering supplies through their respective dealers, give preference to the highest qualities of goods manufactured by members of this association.

We are unalterably opposed to the substitution of inferior goods as first qualities, either by manufacturer or dealer.

We oppose the practice of the manufacture of inferior goods under private brands that can be marketed to the prejudice of other makers' first quality of goods.

We indorse the policy of promotion by the manufacturers of the value of trademarks, brands and other recognized means to secure identification of all their products, thus affording protection alike to the user, the distributor and the manufacturer.

RESALE PRICES.

Resolved, That the manufacturers of this association shall encourage the sale of their product to the consumer on the basis of proper resale prices, insisting upon such prices where goods are sold by makers or their representatives direct and offering every encouragement to the dealer for co-operative action in carrying out this policy.

We unite to discourage the obtaining of unfair profits by selling certain classes of goods at prices carrying more than reasonable profits in order that other classes may be sold at prices that carry no profit, thus preventing honest and healthy competition.

The proper resale price can only be established by the most careful consideration of each line of goods, and arrived at by joint conferences on the part of the makers of such goods and the dealers therein. We favor the selection of committees drawn from the representative manufacturers and dealers, who can arrive at such fair conclusions as will establish proper resale prices that will enable the consumer to secure goods of the best qualities and under the fairest conditions.

We shall, as manufacturers purchasing our supplies through the regular distributing channels, give our support to manufacturers of this association who maintain a proper resale price upon their goods.

STEEL MAKING IN JAPAN.

An American's Estimate of the Status and Possibilities of the Industry.

BY THEODORE D. MORGAN.*

During a rather prolonged stay in Japan, I had the pleasure of seeing the most important steel manufacturing plants of that country. My impressions thereof are given quite fully, because so much has been said of steelmaking in Japan and the remarkable progress it is and has been making.

THE IMPERIAL STEEL WORKS OF JAPAN.

At Wakamatsu, about 1 hr. by rail from Moji, in the southeastern part of Japan, is the imperial government steel works, managed and operated by Japanese exclusively. This plant is now in operation and has been for six years. During that time, it is said, no profit has been made. About 50,000,000 yen, $25,000,000, is now invested, in plant, coal mines and railroads. The company also has its private harbor and a fleet of steamers that bring ore from Corea and China. There are three coal mines and two ore mines within 30 miles of the works. All are connected therewith by the company's standard gauge railroad. There are 17 miles of tracks in the yards.

The works produce pig iron, Bessemer and open hearth rails up to 75 lb. per yard, beams, channels, angles, plates, black and galvanized sheets, bars, wire rods and wire, also galvanized wire, bolts, rivets and spikes. They also make their coke, fire brick, both basic and acid, slag cement, slag tile and ornamental shapes for buildings. These last are artistic and beautiful. A slag brick is also made. For several of the buildings these bricks and ornamental shapes were used, and with their roofs of slag tiles they are indeed very pretty. The color is a light gray.

The Blast Furnaces.

Two blast furnaces are in operation and one is building. The two in operation have an estimated capacity of 250 tons a day each, but are producing only an average of 160 tons. The one now building has a rated capacity under existing conditions of 350 tons per day. With American ores and coke, the management said, this furnace could make 500 tons a day. The furnaces are modern and thoroughly well equipped. Electric hoists convey the materials to the top and there are arrangements for casting in sand bed or into ladles. The furnace slag runs into water and is handled by an electric lift to the cement plant. Coke is furnished by a Semet-Solvay by-product plant and all coal has to be washed. It is also compressed, but even then the coke is not hard, breaks up easily and will not carry the furnace burden well, so that instead of producing 250 tons per day each the furnaces do only 160 tons. The ores do not smelt well, the Corean ore carrying some titanium. Not much ore has yet been discovered in Japan, the ore used at these works coming largely from China.

Two Wellman mixers, heated by gas and of 200 tons capacity each, are located between the steel plant and blast furnaces.

Bessemer and Open Hearth Works.

There are two 10-ton Bessemer converters in the same building as the open hearth furnaces and at the end nearest the blast furnaces. They tip to the level of the charging floor of the open hearth furnaces and are served by the same cranes and tracks as the latter.

There are seven 25-ton basic open hearth furnaces of ordinary type, all in line. The elevated charging floor is served with a Wellman charging crane. Nearly all the steel is top cast from a ladle handled by a 50-ton electric crane. The ingot molds are on cars, which are moved by hydraulic power in front of the platform, where the ladleman and assistant stand. Provision is made for some bottom casting also. At the end of the building is a temporary foundry for steel castings. A steel foundry is soon to be erected.

The open hearth furnaces are arranged to receive hot metal from the mixers. Gas producers for the open hearth plant are directly in front of and in line with the furnaces. They are supplied from hoppers, the coal being fed automatically by a German device. The producers were thus under the eyes of the men at the furnaces. Operations in both the Bessemer and open hearth departments were progressing smoothly. I saw several heats cast without a hitch.

Blooming Mill and Rail Mill.

The blooming mill is a 44-in. reversing mill driven by 48 x 52 in. engines of 4000 hp. It is served by a 25-ton hand crane at the walls and a 10-ton hand crane over the engines. A shear is provided to cut billets up to 8 in. square. There are soaking pit gas furnaces for reheating.

The rail mill is a 30-in., two-high, reversing mill, driven by 5800 hp. engines with three cylinders of 44 in. diameter. There are three stands of rolls. The live rollers are electrically driven, as are also the hot saws. A 10-ton electric traveling crane is provided over the mill. The hot beds are about 130 ft. long, and the finishing department is equipped with electric straightening and drilling machines. From the continuous gas heating furnaces billets are delivered to the rolls by live rollers. This mill rolls shapes and rails. It is strong and well equipped, yet the output of rails does not exceed 125 tons in 12 hr. They were making 3-in. squares the day we were there, rolling them about 30 ft. long. The output on such an order was about 60 tons in 12 hr.

The man whom we would call the roller is paid 1 yen, or 50 cents American money, per day of 12 hr. The heater, or man in charge of the furnace, gets the same, and the common labor about the mill receives 60 sen, or 30 cents American money, per day of 12 hr. Over each mill is a superintendent, known as the engineer. He directs, but does not work himself. The superintendent of this mill had spent three months in a German steel works. He was in trouble and the work was not going on satisfactorily in his department. He wished to know why the bars twisted and turned up as they came out of the rolls. When informed that the men were not careful to keep the cold side of the billet under while working he did not seem to understand, replying that "there was no cold side; had all been in the furnace." The men had to struggle very hard with these twisted bars to get them into the rolls, again causing much lost time, but they repeated it at the next pass.

Bar Mills.

The large bar mill is a 22-in. reversing mill, two-high, with three stands of rolls. It has electrically driven live feed rollers, an electric hot saw, and the mill is driven by a 40 x 40 in. three cylinder engine of 5000 hp. The hot bed is about 130 ft. long. The continuous furnace, heated by gas, is on the design of the Morgan continuous furnace. This mill makes bars and structural steel. The men here receive the same wage as on the rail mill. There were 12 men on each side of the rolls, not counting those handling the levers that controlled engines and rolls. This same superabundance of labor was noticeable throughout the plant.

The small bar mill is what is termed a Belgian type mill, three-high, with 18 in. roughing rolls, set 40 ft. in front of the finishing rolls. The latter are 12 in. diameter, three-high, and there are five stands of rolls, rope driven. There is a continuous gas fired furnace of the Morgan type. They were rolling 2 x ¼ in. angles, running them about 100 ft. long, and it was stated that the output on these would be about 70 tons in 12 hr. The roller on this mill receives 1 yen 50 sen, or 75 cents American money, per day. The heater receives the same, while common labor is paid the same as at the rail mill.

* Formerly vice-president and general manager of the Atlanta Steel & Tin Plate Company, Atlanta, Ind., now a part of the American Sheet & Tin Plate Company.

Plate Mills.

A two-high reversing mill with rolls of 40 in. diameter and 160 in. long is known as the large plate mill. There is a 25-ton hand crane for roll changing, and a 10-ton electric traveling crane for ingot and plate transport. Bars for the sheet mill are rolled on this mill as plates and sheared to the size wanted. The work from this mill was first class, the plates being flat with nice finish. The shear is electrically driven.

The small plate mill is a 32-in. three-high mill and the rolls are 160 in. long. The regenerator furnaces are heated by gas. This is a good, modern mill, but the practice is bad, and we saw much buckled, wavy plate. The speed of the mill was very high and the furnaces were doing bad work, irregular heatings scaling the ingots and slabs heavily. The mill is served by a 15-ton electric traveling crane, which was also used for charging steel into the furnaces.

Sheet Mill.

There are two 22 x 60 in. sheet mills with furnaces heated by gas. These mills are unable to roll anything lighter than 24 gauge, and this only 7 ft. long. The practice here was very bad. The bars were given so high a heat that they blistered and the scale was ⅛ in. thick. Packs in the sheet furnace were left on the bottom and not turned up to get an even heat on both sides. Thus when taken from the furnace the top sheet is so hot it is heavily scaled, while the bottom sheet is cold and black; consequently the top sheets draw much longer in the rolls than the bottom sheet, making excessive scrap. There must also be great irregularity in the gauge. The heavy scale marks the sheets and when pickled out it leaves them pitted almost in holes. The work is not done sufficiently rapidly to keep the rolls hot, so that there is much expansion and contraction of the rolls, resulting in buckled, wavy and pinched sheets. The annealing is imperfect, leaving the sheets hard, stiff and red in color. The pickling is done by hand and is slow and imperfect, causing many black spotted sheets.

In galvanizing, the metal is not kept at proper temperature. The coating on some sheets is heavy and on others light, or the same sheet may be coated light on one end and heavy on the other.

The company also has rod and wire plants. These we did not see. It is now filling an order for wire rods for Canada, delivering them at Vancouver at $38.50 per ton.

Labor Plentiful and Inefficient.

What impressed the writer most was the irregularity with which the men worked throughout the plant. There seemed to be an absence of what we may call team work—that constant, steady, combined effort of crews, so strong in our mills, and which is so potent a factor in getting output. There was no trace of that *esprit de corps* that makes every move and movement count, that keeps rolls and machines constantly full at all hazards, hour after hour, while the output flows forth in a steady stream.

The Japanese steel plants are modern and well equipped with labor saving machinery and appliances, but everywhere one sees more labor than is required. It seems difficult for them to break away from their age-long custom of doing everything by hand. From what we have seen of him we cannot help the impression that the average Japanese worker is a far, far cry behind his American compeer. Perhaps it is too much to expect him as yet to be otherwise. Yet on every hand we have heard such marvelous tales of what he is doing and of what tremendous strides he is making in the arts and industries. His salient lack seems to be failure to comprehend the vital necessity of sustained effort, and to grasp the cardinal idea that all endeavor is for the single purpose of getting results.

Also it appears as if the Japanese do not yet grasp, and therefore do not utilize, to full value, the vast labor saving possibilities of modern machinery. Wages are very low, skilled labor getting from 1 to 1½ yen per day, or 50 to 75 cents. Of common labor, women get 30 to 40 sen a day, or 15 to 20 cents, while men are paid 50 to 60 sen, or 25 to 30 cents.

We had many opinions from American and English superintendents and employers of labor as to the comparative efficiency of Japanese and foreign workmen. In general the statements agreed that it required from two to four Japanese to do as much work as one foreign mechanic does. But in many instances I have seen 10 or 12 doing work that two men would do with us. We are accustomed to believe that Japanese labor is low priced, yet from its inefficiency and the number of men required to perform a task it is really costly. Take, for example, this Imperial Steel Company, employing about 15,000 people to produce and put into marketable steel products 350 tons of pig iron a day, or about 100,000 tons per year. These figures are based on the stated output of pig, and we were informed they buy no pig iron. The Gary plant is, we believe, expected to employ 15,000 people at the works and 5000 more at mines, transportation, &c. It is expected, we understood, with that amount of labor, to produce 1,000,000 tons of finished steel a year. In all probability the plant will do much more.

This comparison stands for to-day. What it may be 25 or 50 years hence no man can say; for Japan is attacking all problems that bear on her material progress with a tremendous and untiring energy that is only equaled by her eagerness to learn. Government aid is freely given to establish needed enterprises, industrial and commercial, and recently it was proposed that the government make loans to small manufacturers, that they may purchase and use improved machinery. Government aid to shipping has been given on a grand scale, and now shipping has so greatly increased that there is not sufficient employment for it, and a decided reaction has set in against subsidies.

Labor Unions.

There are strong unions of labor in Japan, known as guilds, and they have a way of making unreasonable demands and enforcing them. Thus union wages are being rapidly advanced. This in time will take from Japan its chief competitive weapon. The center of these unions is in Tokio. A young man who received his education in America and spent two years there is at the head. He edited a paper called the *Labor World*. This, we are told, has been suppressed because of a tendency toward anarchy.

Many strange tales are told of the guilds. An English superintendent of one of the largest shops pointed out a man to me at one of the lathes whom for three years they had been trying to dismiss for incompetency. Each time they let him go there was a strike and the man had to come back. "On what grounds," I asked, "when the man is incompetent?" "Oh, he is a poor man with a family and must have work," and the superintendent shrugged his shoulders resignedly.

When there is a strike the men simply drop their tools, walk out and sit around, in absolute indifference to the length of time they are idle.

In the Imperial Steel Works they have no strikes, the management said. Perhaps the government does not permit strikes. The company employs 9000 people in the steel plant and 6000 at the mines and railroads. Many of these are women, working in many cases side by side with men, doing the same work, and, so far as we could see, just as much. Their work is that of grading, filling, attending bricklayers, carrying ashes in bags and baskets. Wheelbarrows seem almost unknown. Things too heavy to be carried are dragged on a two-wheeled cart by a man or men. Horses are little used in Japan.

OTHER IRON AND STEEL PLANTS.

Sumitomo Steel Company.

The Sumitomo Steel Works at Osaka manufactures steel castings. There are two 15-ton open hearth furnaces and the foundation is in for the third. This is a fine modern plant, well equipped, and the work turned out looked first class. Everything about the works gave a good impression. There was more the appearance of close attention to the work here than at any plant we saw.

The main building was of steel made in the United States. There were two 10-ton Niles cranes. Nearly all the other machinery was German, but two of the new traveling cranes had been recently made in Tokio. The

works are managed and operated by Japanese entirely. There was a great variety of work being turned out, but mostly railroad and ship work.

The Japan Steel Works.

On the north island, Yezzo, or Hokkaido, as it is now called, new steel works are being erected. This is to be an open hearth plant of 10 50-ton furnaces. Only five will be erected at present. At this plant it is intended to make a specialty of armor plate. The ordinary ship plates and shapes will also be made. The works face the harbor of Muroran. Filling is being done, out to deep water, and the company will have extensive deep water docks. A large hill is being leveled and when all leveling and filling is done there will be a site of probably 100 acres available. All the work is under the supervision of Japanese, no Europeans being employed.

A number of steel buildings are in course of construction and foundations for hammers and mills are being put down. The Babcock & Wilcox Company, English branch, is putting in 5000 hp. of boilers, with automatic coal conveying and stoking machinery. There is also going in about the same power of Scotch boilers. One 100-ton steam hammer and a number of smaller size are being installed. Machinery of all kinds is on the ground, and work is going forward as rapidly as possible. The work has been progressing for two years now, and the company expects to be ready to begin making steel in April next. This does not seem possible, however, from the appearance of the work. The company is composed of English and Japanese capitalists, Armstrong, Maxim & Vickers being the main English connection. The capitalization is $5,000,000. Twenty-five hundred people are employed in construction work and 8000 on dock work, grading and filling. Among them are about 500 women.

A fine example of the present evolutionary condition of things industrial and commercial may be seen at these works. The ground is littered with quantities of modern labor saving machinery to be used in the works. Yet in its placing and erection the most primitive methods are in use. Driving piles for the foundation of the 100-ton steam hammer was a crowd of 60 nearly nude men, grouped about a pile driving derrick, made of poles tied together with ropes, the whole so shaky that one expected to see it collapse at any moment. The men were circled about the derrick like children about a May pole, each pulling on an independent rope attached to the driving weight. They sang the peculiar weird rhythmic cry of the Japanese coolie as they toiled. One man sang a few notes, it was then taken up by all, and at a certain part all pulled together. The weight, about 1000 lb. probably, went up about 4 ft. at the one pull and dropped back as they slacked the ropes. They struck possible 8 or 10 blows a minute. The piles were short and only about 10 in. in diameter and went pretty rapidly once they started driving, but much more time was taken up in getting ready than in doing the actual driving. During this time the drivers sat and stood about idle.

A little distance away were 30 women doing the same work in the same way for smaller foundations. On the pier, driving piles in deep water, were 100 women, grouped about a derrick, pulling their independent ropes and singing even more weirdly than the men; also doing just as effective work. There was this difference in their work: In this case they gave three pulls on the weight, lifting it probably 10 ft. before letting it drop. In one place two pile drivers were being worked by horsepower and one by a steam winch. There was not one modern steam driver on the ground. The grading of the big hill was being done entirely by hand. There were no steam shovels and the work was done with pick and shovel. Women attended the masons, unloading brick and doing many other kinds of work.

This company will not make pig iron, but will use the pig produced by a company now erecting a blast furnace on land adjoining. It is stated that a high tariff is soon to be imposed on all steel products coming into Japan. Upon this the steel companies base expectations of a very profitable business in the future.

A Blast Furnace Company.

Adjoining the steel plant another company is building a blast furnace. We were told the capacity is to be 100 tons per day. Native ores are to be used, a fairly large deposit having been discovered near here. It is also intended to use beach sand, rich in iron, that is plentiful here. In the light of New Zealand's many attempts to smelt beach sand in a blast furnace, all of which have been failures, this is not promising. However, they feel that by briquetting the sand under heavy pressure it can be successfully used.

This company has large coal and coaking interests near by, and formerly owned the railroads from the mines. Recently the government has taken them over, but the company still retains the privilege of shipping coal. The coal fields here are extensive, and in numerous veins from 3 to 25 ft. in thickness, the latter having two partings to it. This coal is bituminous, very hard, and is said to make good coke. It analyzes as follows:

In 100 parts of coal.

Moisture	1.218
Volatile matter	42.235
Carbon	51.502
Ash	4.573
Sulphur	0.472

Specific gravity, 1.230.

In 100 parts of coke.

Fixed carbon	91.962
Ash	7.569
Sulphur	0.469

Several other mines are in operation and some recent new discoveries have been made. The company expects to take out this year 1,250,000 tons. Much coal is shipped out of Japan. There are two small steel casting plants at Kobe, we were informed, each having one 5-ton open hearth furnace. At Kobe is the government arsenal and armor plate is being made. These plants we did not visit.

Pittsburgh's Civic Improvement Commission.

Mayor George W. Guthrie of Pittsburgh has appointed the full membership of the new Civic Improvement Commission, which was announced at the time of the national civic conventions in Pittsburgh in November. The scheme of the commission is unique, says *Charities and the Commons*. It is made up of 15 sections for each of which one member will be responsible. This member will act as chairman of a sub-committee, which will take up consecutively and in detail the special subjects assigned. At the same time the central office of the new organization will be headquarters for information on all civic matters, and the commission, while not intended to duplicate the work of any agency already at work in the city, will afford a focus for such work. The range of subjects for the sub-committees, while not announced, is understood to represent a broader scope than that of any existing commission created in an American city.

H. D. W. English, former president of the Pittsburgh Chamber of Commerce, is chairman of the commission. His associates, named below, include some of the leaders in engineering, legal, architectural and business circles in Pittsburgh: A. H. Allerton, president Pittsburgh Board of Trade: D. P. Black, president Real Estate Trust Company; John W. Beatty, director of arts, Carnegie Institute; T. E. Billquist, Billquist & Lee, architects; H. J. Heinz, president H. J. Heinz Company; W. L. Jones, fire insurance; Julian Kennedy, consulting engineer; H. L. Kreusler, building construction; A. J. Kelley, Jr., president Commonwealth Real Estate Trust Company; J. W. Kinnear, Kinnear, McCloskey & Best, attorneys-at-law; S. C. Long, general superintendent Pennsylvania Railroad; Joseph W. Marsh, vice-president and general manager Standard Underground Cable Company; W. H. Matthews, head of Kingsley House; Lee S. Smith, president Pittsburgh Chamber of Commerce; Charles F. Weller, secretary Associated Charities of Pittsburgh.

Following the reorganization of the New York State Steel Company, Buffalo, N. Y., the work of completing its plant will be resumed at once. The steel works is about ready for operation, but only about 80 per cent. of the construction of the blast furnace had been finished when work was suspended in the fall of 1907.

PERSONAL.

Ernst Sachs of Fichtel & Sachs, ball bearing manufacturers of Schweinfurt, Germany, is in this country visiting machinery manufacturers.

H. Carstens and K. Kirmse of the engineering staff of Alfred H. Schutte, machinery exporter and importer, who spent three months in visiting manufacturers in this country, sailed January 19 for Germany.

William H. Donner of Pittsburgh has been elected a director of the Cambria Steel Company, succeeding Leonard C. Hanna of Cleveland.

Charles C. Boyden, formerly with Matthew Addy & Co., is now representing B. Nicoll & Co., New York City, as salesman for iron, steel, coal and coke.

Thomas P. Egan, president of the J. A. Fay & Egan Company, Cincinnati, was a guest at the annual dinner of the American Chamber of Commerce, at Paris, Tuesday evening, January 19.

John P. Crosgro has been appointed district manager of the Allis-Chalmers Company, with headquarters at El Paso, Texas. The territory included in this district will embrace Chihuahua, Coahuila, Sonora, Sinaloa and Lower California, in Mexico, as well as Arizona and parts of Texas and New Mexico in the United States.

E. L. Smith, sales manager for White, Van Glahn & Co., New York, has resigned to accept a similar position with the Buffalo Forge Company, Buffalo, N. Y., to take effect February 1.

Samuel B. Sheldon, who has resigned as general superintendent of the Lackawanna Steel Company's plant to accept the position of general superintendent of the Sancon Works of the Bethlehem Steel Company, was tendered a farewell banquet at the Hotel Iroquois, Buffalo, on the evening of January 23, by his associate officials and heads of departments of the Lackawanna Steel Company. A silver loving cup was presented to him on that occasion.

Henry I. Lea has opened an office at 616 The Rookery, Chicago, to engage in gas engineering consulting practice. His experience in this field has been acquired in his earlier connections with the Emerson McMillin (New York) and the Dawes (Chicago) Operating Syndicates, the Western Gas Construction Company, Ft. Wayne, Ind., and the Westinghouse Machine Company, Pittsburgh, Pa.

Gideon L. Austin, superintendent of the Buckeye Portland Cement Company, Bellefontaine, Ohio, will sail in February for Yatchura, Japan, to take charge of a large cement mill being built there by an American syndicate.

Theodore S. Stratton, Jr., of Gaar, Scott & Co., Richmond, Ind., has left for Russia to establish a permanent agency and a warehouse at Odessa for the company's products, principally threshing machines. The company has had a good trade with Russia for several years.

H. L. Williams of Hickman, Williams & Co., Chicago, has left for a six weeks' tour through old Mexico.

Thomas Lynch, president of the H. C. Frick Coke Company, Pittsburgh, has been elected a director of the Union Trust Company of that city.

The Andrews & Hitchcock Iron Company, Youngstown, Ohio, held its annual meeting last week and re-elected its old Board of Directors, consisting of Frank Hitchcock, W. J. Hitchcock, H. W. Heedy, Mrs. Louis Andrews, Myron I. Arms and John Shaw. Officers were re-elected, as follows: Frank Hitchcock, president; W. J. Hitchcock, vice-president and manager; H. W. Heedy, secretary and treasurer.

Alvah C. Smith, superintendent of the blast furnaces of the Republic Iron & Steel Company at Youngstown, Ohio, has resigned and has been succeeded by Joseph Searight, formerly at the blast furnaces of the Carnegie Steel Company at New Castle, Pa.

Henry R. Rea has been elected a director of the Monongahela River Consolidated Coal & Coke Company, Pittsburgh, succeeding Frank Semple, deceased.

Thomas W. Simpers has been appointed manager of sales of the American Sheet & Tin Plate Company, to succeed Howard M. Davis, resigned, and H. M. Shepler has been appointed assistant manager of sales, succeeding Mr. Simpers, in the offices of the company in the Pennsylvania Building, Fifteenth and Chestnut streets, Philadelphia, Pa., effective from January 20.

The Baltimore Retort & Fire Brick Company, Baltimore, Md., has secured the services of E. L. Richa to assist L. N. Rancke in designing and constructing coal gas benches with horizontal, inclined or vertical retorts and other modern economical constructions requiring high grade material. The company has fully recovered from the effects of the fire which destroyed its old plant and is in better position than ever to serve its customers.

OBITUARY.

CHARLES H. BESLY.

Charles Howard Besly, founder of Charles H. Besly & Co., Chicago, who died at the Henrotin Memorial Hospital in that city on December 31 as the result of an operation, was well known to the machinery trade throughout the entire country. He was born in Milwaukee, Wis., June 16, 1852, and had been a resident of Chicago since 1863, receiving his academic education in the high schools of that city. After graduating in chemistry at the Rush Medical College of Chicago, Mr. Besly spent a year at study in the Mechanical Schools of London, England. He began his business career as an employee in the wholesale dry goods store of Marshall Field & Co. He was afterward employed by S. D. Kimbark & Co., heavy hardware, and also by the railroad and mill supply firm now known as Crerar, Adams & Co. In 1873 he became manager of the Bergen Tool Company, Batavia, Ill., in which capacity he traveled extensively. Two years later he opened a store on Lake street, near Clark street, where as a broker he handled machinist supplies.

The firm of Charles H. Besly & Co. was established at 175 Lake street in 1881, being composed of Charles H. Besly and David J. Kennedy, the latter in 1886 retiring from the business, which since that time has been conducted by Mr. Besly. The business was moved to 10 and 12 North Canal street in 1891, where it continued to grow until 1903, at which time the firm moved into its own building at 15, 17, 19 and 21 South Canal street, its present location. Mr. Besly became interested in the manufacture of tools in 1886, when he established a factory at Beloit, Wis., for the manufacture, in a small way, of die stocks. In the same year he organized the Brown & Besly Company for the manufacture of letter files, filing cabinets, &c. Both of these industries have steadily expanded and now occupy large factory buildings of their own.

Outside of his trade interests, Mr. Besly gave considerable attention to the breeding of Guernsey cattle, which was carried on at his country place, Besly Farm, Edison Park, Cook County, Ill. He was a member of the American-Western and Illinois Guernsey Cattle Club, National Horticultural Society, American Geographical Society, Engineers' and Machinery clubs of New York, and Athletic Association, Union League Club, Yacht Club and Association of Commerce, all of Chicago. He leaves a widow and four daughters.

RAOUL CHARTREY, for the last 25 years vice-president of the Joshua Hendy Iron Works, San Francisco, Cal., died January 10, aged 62 years. He was born in France, located in San Francisco in 1856, and in 1859 established the City Iron Works, in connection with Judge Low. He served an apprenticeship in a foundry.

A. KENNEDY ASHWORTH died at his residence at Crafton, Pa., last week of typhoid pneumonia, aged 36 years. He was born in Covington, Ky. He first entered the employ of Joseph Horne Company as a mechanical engineer, and shortly thereafter became a member of the firm of D. Ashworth & Son, consulting engineers. He saw the future in the developing of engineering specialties, and associated himself with the Pittsburgh Gage & Supply Company, and has been actively engaged in engineering work since that time, except for a short period when he was connected with the Buckeye Engine Company, establishing a Boston office. For some time after his connec-

tion with the Pittsburgh Gage & Supply Company he was engaged in establishing branch offices in Philadelphia, New York, Chicago and other large cities.

E. P. TOWNSEND of C. C. & E. P. Townsend, wire nail manufacturers, New Brighton, Pa., died suddenly at his home in that city, January 27.

Steel Corporation Earnings in 1908.

Total for 1908 Was $91,826,520, Against $160,964,674 in 1907.

The statement of its net earnings for the last quarter of 1908, just issued by the United States Steel Corporation, enables approximate figures for its total earnings of the year to be made up. Adding the results of the last quarter to those given for the previous quarter, the total is $91,826,520. These figures suffer the disadvantage of being compared with those of 1907, when the Steel Corporation attained its maximum earnings of $160,964,674. They are, nevertheless, much above what had been expected at the opening of 1908.

The quarterly statement of net earnings given below compares the last quarter of 1908 with the last quarter of 1907. The earnings for December, 1908, may be slightly changed on completion of the audit of accounts for the year:

	1908.	1907.
October, net earnings	$9,415,668	$17,052,211
November, net earnings	8,756,729	10,467,253
December, net earnings	8,053,088	5,034,531
Total after deducting all expenses incident to operations, including those for ordinary repairs and maintenance of plants, employees' bonus funds, and interest on bonds and fixed charges of the subsidiary companies	$26,225,485	$32,553,995
Less charges and appropriations for the following:		
Sinking funds on bonds of subsidiary companies.... $248,272		494,523
Depreciation and reserve funds (regular provisions) 4,965,550		
	5,213,822	5,683,275
Special improvements and replacement funds	.....	500,000
	.....	6,677,798
Net earnings	$21,011,663	$25,876,197
Deduct interest for the quarter on U. S. Steel Corporation bonds outstanding	$5,942,354	5,879,231
Sinking funds for the quarter on U. S. Steel Corporation bonds—viz.:		
Installments	1,012,500	1,012,500
Interest on bonds in sinking funds	357,109	295,231
	7,311,963	7,186,962
Balance	$13,699,700	$18,689,235
Less charged off for adjustments in sundry accounts	.....	483,529
Add net adjustments in sundry accounts	289,183	.....
	$13,988,883	$18,205,706
Dividend for the quarter on preferred stock, 1¾ per ct.	$6,304,919	6,304,919
Dividend for the quarter on common stock, ½ per ct.	2,541,513	2,541,513
	8,846,432	8,846,432
Surplus for the quarter	$5,142,451	$9,359,274
Less appropriated from surplus on account of expenditures made and to be made on authorized appropriations for additional property, new plants, construction and discharge of capital obligations	.....	6,000,000
Balance of surplus for the quarter	$5,142,451	$3,359,274

The net earnings for the year 1908, $91,826,520, compare with $160,964,674 in 1907, $156,624,273 in 1906, $119,787,658 in 1905 and $73,176,522 in 1904. The net earnings for the past four years, compared monthly and quarterly, were as follows:

	1908.	1907.	1906.	1905.
January	$5,052,743	$12,838,703	$11,856,375	$6,810,847
February	5,709,428	12,145,815	10,958,275	6,629,463
March	7,466,834	14,137,974	13,819,840	9,585,586
First quarter.	$18,229,005	$39,122,492	$36,634,490	$23,025,896
April	$6,761,680	$14,600,838	$12,581,902	$9,037,925
May	6,021,279	16,056,832	14,041,601	10,602,187
June	7,482,797	14,846,035	13,501,530	10,665,004
Second quar.	$20,265,756	$45,503,705	$40,125,033	$30,305,116
July	$8,599,630	$13,804,167	$12,242,098	$9,035,168
August	9,152,311	15,279,173	13,158,860	10,986,901
September	9,354,333	14,720,945	12,713,666	11,218,513
Third quarter.	$27,106,274	$43,804,285	$38,114,624	$31,240,582
October	$9,415,668	$17,052,211	$14,984,926	$12,400,306
November	8,756,729	10,467,253	13,482,464	11,827,215
December	8,053,088	5,034,531	13,277,574	10,988,543
Fourth quar.	$26,225,485	$32,553,995	$41,744,964	$35,216,064

The amount carried to surplus at the close of the first quarter of 1908 was $7865; second quarter, $195,595; third quarter, $5,152,023; last quarter, $5,142,451; total for the year, $10,497,934.

The statement of unfilled orders on hand at the close of 1907 compares as follows with previous quarters:

	Tons.		Tons.
December 31, 1908	3,603,527	June 30, 1905	4,829,655
September 30, 1908	3,421,977	March 31, 1905	5,597,560
June 30, 1908	3,313,876	December 31, 1904	4,696,203
March 31, 1908	3,765,343	September 30, 1904	3,027,436
December 31, 1907	4,624,553	June 30, 1904	3,192,277
September 30, 1907	6,425,008	March 31, 1904	4,136,961
June 30, 1907	7,603,878	December 31, 1903	3,215,123
March 31, 1907	8,043,858	September 30, 1903	3,278,742
December 31, 1906	8,489,718	June 30, 1903	4,666,578
September 30, 1906	7,936,884	March 31, 1903	5,410,719
June 30, 1906	6,809,589	December 31, 1902	5,347,523
March 31, 1906	7,018,712	September 30, 1902	4,843,007
December 31, 1905	7,605,086	June 30, 1902	4,791,993
September 30, 1905	3,865,377		

Copper Statistics to Be Collected.

The progress made by the Copper Producers' Association in collecting statistics and the aims of the association were given yesterday in the following authoritative statement by one of the officers: "Producers are getting together exact figures of the stock of marketable copper existing on January 1. The figures will represent stocks of lake, electrolytic, casting and pig copper marketed as such wherever they can be located in this country. A similar statement as to stocks will be furnished monthly thereafter as soon as the figures can be compiled. A great deal of harm has been done from time to time by misleading statements as to stocks, and it is hoped that this new movement will serve the purpose of giving the correct information as soon as practicable. It will be useful not only to producers but to consumers. The leading copper interests are vitally concerned in a steady market, and every user of the metal is likewise interested in a steady market, which permits of their buying with confidence and naturally more business is done on such a basis. This movement is confined absolutely to the assembling of statistics, the question of price not being considered in any way. The market is to be left to take care of itself and the supply and demand will regulate the price. In all probability it will show the quantity of copper produced and consumed monthly. The figures will be published as soon as compiled, so that every one interested therein will have possession of the facts as to production, consumption and stocks."

It is unofficially learned that the figures will probably be available about the middle of next month, and will be compiled by L. C. Graton, who now writes the Government report on copper production.

Car orders recently reported include 500 steel underframe box cars, 200 steel phosphate cars and 50 ballast cars for the Seaboard Air Line and 500 freight cars for the Chesapeake & Ohio. The *Railroad Age Gazette's* report of locomotives ordered last week shows a total of 128, including 55 in Canada.

The last reported increase in idle freight cars, like that of a year previous, was due, according to the American Railway Association report, to the usual holiday recession. The total of surplus cars on January 6 was 333,019, an increase of 110,942 in two weeks. A continued decrease in shop cars was reported, and this item is now close to normal.

NEWS OF THE WORKS.

General Machinery.

The Universal Road Machinery Company has been organized to take over the business and property of Julian Scholl & Co., formerly at 126 Liberty street, New York, with a plant at Kingston, N. Y. The new company has acquired from the trustee in bankruptcy of Julian Scholl & Co. all the property, including a large stock of finished and unfinished material, patents, patterns, &c., and expects to operate the plant along the same lines of the former owners, producing road machinery, steam and horse power rollers, stone crushers, steam elevators, mixers, engines and boilers, &c. The New York office will be at 55 Liberty street. George H. Ford is president; William Burnham of the Standard Steel Works, vice-president; Alexander L. Oliver, secretary and treasurer, who with Frank H. Hall and Victor W. Hungerford constitute the Board of Directors.

The Bigelow Carpet Company, Clinton, Mass., has installed a 20-ton Northern crane in its power station, with a span of 48 ft. and a lift of 31 ft.

A new machine shop, called the Riverside Mechanical Works, of which N. P. Christianson is proprietor, has been established at Riverside, Cal., with equipment suitable for general machine and automobile repair work.

The Buffalo Pitts Company, Buffalo, N. Y., manufacturer of traction engines, road rollers, &c., has awarded contract for an addition to its plant on Carolina street.

C. A. Martin, Canastota, N. Y., has secured a site at Chateaugay, where he will establish a woodworking and machine shop, the equipment for which has been purchased. The plant will be operated by electricity, and a spur from the Rutland Railroad will run into the yard.

The American Automatic Fire-Curtain Company, Philip Joyce, manager, 52 Niagara street, Buffalo, N. Y., desires bids and will place order in about 10 days for one 10-ft. power shear for sheet metal working.

The International Nut Company, R. A. Ellis, president, Niagara Falls, N. Y., is having plans prepared for an addition to its machine shop, one story, 25 x 80 ft. The company is engaged in the manufacture of nuts by a process of cutting direct from the bar, drilling and threading, rather than by the stamping process.

Power Plant Equipment.

The Merchants' Heat & Light Company, Indianapolis, Ind., is contemplating improvements to its plant which will include the erection of an additional power house of larger capacity and the installation of new mains and conduits into the outlying districts of the city not covered by the present system. Plans for this work are under consideration, but are not as yet fully matured.

The town boards of Francesville, Medaryville and Monon, Ind., have decided to build a power plant jointly to supply electric light for the three. The power house will be at Medaryville, the central town.

Although the question of location has not been definitely settled, it is likely that the machine shops and power plant of the Kansas City, Olathe, Ottowa & Iola Railway Company, a new electric traction line to be constructed from Kansas City, Mo., through to southern Kansas via Iola, will be erected at the latter city. The offices of the company are in the New England Building, Kansas City, Mo.

The Rochester Railway & Light Company, R. M. Searle, general manager, Rochester, N. Y., is having plans prepared for power station building to be erected at Vincent and Gas streets, one story, 38 x 50 ft., of brick, steel and concrete construction. Work will be started in spring. The company has closed contract for supplying 1500 hp. electric current to the Bausch & Lomb Optical Company's plant, and the above power station is to be constructed for transforming Niagara Falls current.

The Mayor of Anadarko, Okla., will receive bids until February 1 for two triplex pumps, two return tubular boilers, cast iron water pipe, hydrants, valves, &c., for the water works.

The Council of Saltburg, Pa., will receive bids until February 1 for a complete water works for the Borough of Avonmore, Pa.

H. von Schon, Detroit, Mich., is preparing plans for a hydro-electric plant on the Sturgeon River to produce about 6000 kw., the power to be transmitted to the mines near Houghton. The dam will be about 100 ft. high, and the installation will include hydraulic and electric generating equipment, wooden stave and steel plant, pipe transmission lines, &c.

The El Paso Suburban Railway Company, El Paso, Texas, of which Frank Tobin is president, is arranging to erect a power house and car sheds and also to extend its line up the Mesa via Oregon to Las Cruces and probably to Oro Grande.

T. E. McGarr, secretary of the State Commission in Lunacy, Capitol Building, Albany, N. Y., will receive bids until February 3 for an engine and dynamo, switchboard, feed water heater and changes to exhaust mains at the Buffalo State Hospital, Buffalo, N. Y. Drawings and specifications can be seen at the Buffalo State Hospital or obtained from the State Architect, Franklin B. Ware, Capitol Building, Albany.

Foundries.

The Enz & Orr Foundry Company, Denver, Colo., has been chartered as a stock company with a capital of $25,000 and succeeds the firm of Enz & Orr.

The Mitchell & Van Meter Company, Pottstown, Pa., is getting bids on the construction of a new brass foundry 40 x 75 ft.

The United States Radiator Company, Dunkirk, N. Y., is having plans prepared for a large addition to its foundry.

The H. E. Mills Mfg. Company, Henry E. Mills, president, and Frank S. Scoville, secretary, Rosenbloom Building, Syracuse, N. Y., has decided to rebuild its large factory building at Tracy street and Delaware, Lackawanna & Western Railroad which was destroyed by fire last fall. The main building will be one story, of brick and steel construction, 100 x 200 ft. Bids will soon be invited covering the latest type of machinery for equipping the new building. The company manufactures core compounds and foundry machinery. Since the fire last fall it has had under consideration moving the plant to North Milwaukee, also to Cleveland, but finally decided on rebuilding at Syracuse.

The Northern Engineering Works, Detroit, Mich., has furnished a No. 42 Newten cupola to the Cadillac Machine Company, Cadillac, Mich.; 3-ton Newten cupola, Interstate Drainage & Investment Company, and a 5-ton Newten cupola, Rockingham Foundry & Machine Company, Rockingham, N. C.

Bridges and Buildings.

The Triad Engineering & Construction Company has been organized at Goshen, Ind., by Harry A. Butterfield of that city and A. W. Malone and C. A. Burnette of Warsaw, Ind. All three have been in the engineering and construction business for several years.

Fires.

A recent fire practically destroyed the blacksmith shop and foundry of the Stout-Parke Foundry & Machine Works, Carthage, Mo. The burned portions of the plant will be rebuilt as soon as weather permits.

The combination blacksmith, wood and machine shop of Joseph W. McCormick, Providence, R. I., was burned January 18, the loss being about $10,000.

The plant of the Canadian Asbestos Company, Lachine, Canada, was burned January 19, the loss being about $40,000.

Several buildings of the plant of the E. I. du Pont de Nemours Powder Company at Gibbstown, N. J., were wrecked by an explosion January 20.

Hardware.

The Stork Folding Crib Company, Vermilion, S. D., is preparing plans for an additional factory building and will also add a foundry to its present equipment for the purpose of making small castings used in the construction of its cribs. A dipping and drying room will be included in these improvements. The company has recently established a distributing house in Chicago, of which M. L. Thompson has charge.

The Paraffine Paint Company, Farmingdale, N. J., has closed a contract with the Chicago Heights Land Association for a tract of land consisting of 5 acres at the corner of Wentworth avenue and Seventeenth street, Chicago Heights, Ill., on which it will erect four buildings of brick, stone and mill construction, 100 x 460, 80 x 275, 60 x 100 and 60 x 150 ft. respectively, for the manufacture of paint, malthoid roofing, malthine building and insulating paper and damp coarse floor cloth and pabco roofing. Side tracks are now being laid on the site and building operations will be begun immediately. The factory when completed will employ about 200 men. The equipment of the Farmingdale factory will in all probability be moved and installed in this plant, but the new factory being of a larger capacity will necessitate the purchase of considerable new equipment.

The Tanner Brothers Company, Bergen, Genesee County, N. Y., has been organized with $35,000 capital and will engage in the manufacture of carriages. The incorporators of the company are Harry W. Tanner and Charles E. Honsel, Bergen; Holden T. Miller, Batavia; Frank E. Wright, Oakfield, and George W. P. Roberts, Philadelphia.

The International Nut Company, Niagara Falls, N. Y., which specializes on high grade nuts for automobile work, &c., will enlarge its plant by the erection of a two-story factory building 25 x 80 ft., for which considerable additional machinery equipment will be required.

The Sanitary Metal Basket Company has been organized at Lafayette, Ind., and incorporated with $20,000 capital stock, to manufacture metal baskets, pails, &c. The directors are W. S. Crum, O. P. Morehouse and E. E. Gale.

Miscellaneous.

The Dery Mfg. Company, Duluth, Minn., has incorporated with a capital stock of $50,000 and will erect a new plant in West Duluth for the manufacture of Dery force feed lubricators. Henry J. Dery is president; Louis B. Kremeyer, vice-president; R. E. Conley, secretary, and Louis Dery, treasurer.

The Metallic Railroad Tie Company has been incorporated at Shirley, Ind., with $10,000 capital stock, to manufacture metallic railroad ties. The incorporators are George Williams, Frank Gordon and James McCune.

The Iron and Metal Trades

The whole Iron and Steel trade is dull, and while it is recognized that January is usually a quiet month, still there is keen disappointment at the manner in which new business has flattened out. Pending tariff revision is usually assigned as the principal cause, but there are again many who attach less importance to it as a factor, and this feeling seems to be more prevalent further West. It is the uncertainty in regard to prices for finished Iron and Steel which is regarded as a potent drag. While the concessions are not large they seem to be growing more general and are having a moral effect which is unsettling. They are shaking confidence in the co-operation among the leading manufacturers and are raising the specter of a price war. It is pointed out, however, that a concerted readjustment of prices would have little effect unless there were a demand which would be stimulated. It would be a question, too, of the amount of the reduction accepted by the makers. There is a group who would be inclined at the psychological moment to start buying by a radical cut.

Aside from a lot of 5000 tons for the Nickel Plate, no sales of Rails of consequence have been made. The 80,000 tons for the New York Central has not yet been allotted, and the 40,000 to 60,000 tons required for the Baltimore & Ohio is not booked. An interesting transaction has been concluded by the New Haven road, which will have 8000 tons of old 100-lb. Steel Rails rerolled by the plant of the McKenna Process Company at Tremley Point, N. J.

The amount of Structural Material placed is not large, but the prospects are quite fair. It is estimated that the bids which are now out on different jobs foot up about 90,000 tons, and that inquiries are at hand which would call for 100,000 tons more.

The Pig Iron markets are quiet throughout the whole country, with a tendency to weakness. This is attributed chiefly to the efforts of merchants to market Iron purchased at considerably lower prices last year, on a good deal of which deliveries could only begin after the opening of this year. It is true, however, that some smaller furnace interests are offering metal at concessions varying from 25 cents to 50 cents per ton.

The Cast Iron Pipe trade is very dull along the seaboard, but is more active in the Central West and the Far West, which accounts for the apparently conflicting reports. In the Eastern territory some very low prices are being made, considering the price of Pig Iron.

The Old Material markets have weakened further.

The lighter lines are quiet. The American Sheet & Tin Plate Company has 50 per cent. of its Sheet capacity and 67 per cent. of its Tin Plate capacity in operation.

A large number of the independent Coke producers in the Connellsville District have been trying to get together to maintain the price of Furnace Coke at a minimum of $1.75, at oven, for standard Coke.

The deadlock in Copper continues and sales are light. Whether the present nominal prices, 14.25c. for Lake and 13.75c. for Electrolytic, will stand the test of a serious trial of the market seems doubtful.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	1909.	1909.	1908.	1908.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	$17.25	$17.25	$17.25	$18.25
Foundry No. 2, Southern, Cincinnati	16.25	16.25	16.25	16.00
Foundry No. 2, Local, Chicago	17.35*	17.35*	17.35*	18.35*
Basic, delivered Eastern Pa.	16.75	16.75	16.75	....
Basic, Valley Furnace	15.50	15.50	15.75	....
Bessemer, Pittsburgh	17.15	17.40	17.40	18.90
Gray Forge, Pittsburgh	15.40	15.40	15.40	16.15
Lake Superior Charcoal, Chicago	19.50	19.50	19.50	22.00
BILLETS, &c., Per Gross Ton:				
Steel Billets, Pittsburgh	25.00	25.00	25.00	28.00
Forging Billets, Pittsburgh	27.00	27.00	27.00	30.00
Open Hearth Billets, Phila.	26.20	26.20	26.20	30.00
Wire Rods, Pittsburgh	33.00	33.00	33.00	35.00
Steel Rails, Heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel Rails, Melting, Chicago	14.50	14.50	15.50	12.25
Steel Rails, Melting, Phila.	16.50	16.75	17.50	12.00
Iron Rails, Chicago	18.50	18.50	19.50	16.00
Iron Rails, Philadelphia	19.50	21.25	21.25	16.50
Car Wheels, Chicago	15.50	15.50	16.00	19.00
Car Wheels, Philadelphia	16.00	16.00	16.00	17.00
Heavy Steel Scrap, Pittsburgh	16.50	16.50	17.00	12.50
Heavy Steel Scrap, Chicago	13.75	14.00	14.75	11.00
Heavy Steel Scrap, Philadelphia	16.50	16.75	17.50	12.00
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	1.55	1.55	1.52	1.47
Common Iron Bars, Chicago	1.50	1.50	1.50	1.55
Common Iron Bars, Pittsburgh	1.50	1.50	1.50	1.40
Steel Bars, Tidewater, New York	1.56	1.56	1.56	1.76
Steel Bars, Pittsburgh	1.40	1.40	1.40	1.60
Tank Plates, Tidewater, New York	1.76	1.76	1.76	1.86
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.70
Beams, Tidewater, New York	1.76	1.76	1.76	1.86
Beams, Pittsburgh	1.60	1.60	1.60	1.70
Angles, Tidewater, New York	1.76	1.76	1.76	1.86
Angles, Pittsburgh	1.60	1.60	1.60	1.70
Skelp, Grooved Steel, Pittsburgh	1.45	1.45	1.45	1.70
Skelp, Sheared Steel, Pittsburgh	1.50	1.50	1.50	1.80
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, Black, No. 28, Pittsburgh	2.50	2.50	2.50	2.50
Wire Nails, Pittsburgh	1.95	1.95	1.95	2.05
Cut Nails, Pittsburgh	1.75	1.75	1.75	2.00
Barb Wire, Galv., Pittsburgh	2.40	2.40	2.40	2.50
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	14.25	14.50	14.37½	14.00
Electrolytic Copper, New York	13.75	13.75	14.12½	14.00
Spelter, New York	5.10	5.10	5.15	4.70
Spelter, St. Louis	4.95	4.95	5.00	4.55
Lead, New York	4.17½	4.20	4.20	3.75
Lead, St. Louis	4.02½	4.05	4.05	3.60
Tin, New York	27.75	28.00	29.20	27.60
Antimony, Hallett, New York	8.00	8.00	8.12½	9.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, 100 lb., New York	$3.89	$3.89	$3.89	$3.89

* These quotations have been changed from prices at furnace to delivered prices at foundries. The 35c. is for switching charges.

Chicago.

FISHER BUILDING, January 27, 1909.—(*By Telegraph.*)

While the movement in rolled products is too slow and deliberate to inspire enthusiasm, the month promises to finish stronger than it began. Buyers, however, are measuring their purchases by the immediate demands of consumption, and but little provision is being made for future requirements. It cannot be ignored that a more or less general feeling of uncertainty as to the maintenance of prices at the present level is to some extent responsible for the extreme conservatism displayed in this respect. Since the mills are in position to furnish material promptly, as wanted, there is no occasion to anticipate the future. So far regular prices, with few exceptions, are being adhered to about as closely as they have been for some time. Two orders for Heavy Rails aggregating 6225 tons were secured last week by the leading interest, and a new inquiry for 5000 tons from a prospective industrial branch line in Utah is pending. Little new business has been secured by the fabricating shops, although it is reported that a number of good sized projects in the West will soon be asking for figures. Steel Bar specifications are fairly liberal. Those entered by the Republic Iron & Steel Company for its Western mills are within 15 per cent. of the December record

for the same period. Aside from some exchange contracts for Iron Bars, made with the railroads, the mills are getting only a moderate amount of hand to mouth orders from the general trade. The Scrap Iron market is lifeless and weaker. Dealers are willing to buy at present prices any material on which deliveries can be deferred for 60 days, but there is no market for spot Scrap.

Pig Iron.—The extreme dullness in Pig Iron which has characterized trade since the first of the year remains unbroken, and seems, in fact, to have been rather accentuated the past week. The utter indifference of buyers is forcibly illustrated by the fact that the inquiries, all told, now under consideration hardly exceed 1000 tons. Occasional spot orders for small lots represent the extent of consumers' requirements at the present time. There are instances here and there of foundries running fairly full, but on the whole the melt is disappointingly small; that the melt has fallen short of expectations is evidenced by continued requests for the holding up of deliveries on first quarter Iron now due. Some resale Iron is also coming on the market, but no tonnage of consequence has thus far been offered by consumers in this district, and no serious disturbance from this source is anticipated unless a decline of unlooked for extent should develop. A resale lot of 1000 tons of Southern Iron was recently offered by Eastern holders on a basis of $12.75, Birmingham, for No. 2 Foundry, but as far as is known without results. Continued inaction bears heavily on the stability of furnace prices, and some of the Northern producers who have been holding at $17.50, Chicago, are now disposed to recede 25c. a ton from this price. The leading Southern interests are still holding at $13, Birmingham, although it is likely that offers of $12.75 would not be declined by some of the less prominent furnaces. There is, however, not enough business in sight to test the attitude of producers respecting values, but conditions generally are less conducive to strength than to weakness. There is no demand for Malleable Iron, although it is noted that melters of this grade are taking out their contracts more freely than are other foundries. This is explained by the fact that most of it is going to the agricultural implement interests. The experience of last year is still fresh in the minds of consumers, and they are accordingly cautious about forward commitments. As a result, there is absolutely nothing doing in contracts covering the third quarter. The following quotations are for January, February and March delivery, f.o.b. Chicago:

Lake Superior Charcoal	$19.50 to $20.00
Northern Coke Foundry, No. 1	17.85 to 18.35
Northern Coke Foundry, No. 2	17.35 to 17.85
Northern Coke Foundry, No. 3	16.85 to 17.35
Northern Scotch, No. 1	18.35 to 18.85
Southern Coke, No. 1	17.85 to 18.35
Southern Coke, No. 2	17.35 to 17.85
Southern Coke, No. 3	16.85 to 17.35
Southern Coke, No. 4	16.35 to 16.85
Southern Coke, No. 1 Soft	17.85 to 18.35
Southern Coke, No. 2 Soft	17.35 to 17.85
Southern Gray Forge	15.85 to 16.35
Southern Mottled	15.60 to 16.10
Malleable Bessemer	17.35 to 17.85
Standard Bessemer	17.90 to 18.40
Jackson Co. and Kentucky Silvery, 6 %	19.90 to 20.40
Jackson Co. and Kentucky Silvery, 8 %	20.90 to 21.40
Jackson Co. and Kentucky Silvery, 10 %	22.90 to 23.40

(By Mail.)

Billets and Rods.—Little demand for Forging Billets is coming from any source, and the few sales that have been made were almost exclusively carload lots. An inquiry for 100 tons from an implement manufacturer is reported. In spite of the scant demand there is said to be no deviation from the regular price of $28.50, Chicago. Specifications continue fairly good on Wire Rods, on which we quote the following prices: Bessemer, $33; Basic, $34; Chain, $33, all at Pittsburgh.

Rails and Track Supplies.—The principal heavy Rail orders taken last week included 5000 tons of Bessemer sections placed by the Nickel Plate and 1225 tons of Open Hearth by the Chicago & Oak Park Elevated, the former going to the Illinois Steel Company and the latter to the Indiana Steel Company. Nothing further has been heard from the pending requirements of other roads heretofore mentioned. The Tooele Valley Railroad Company has an inquiry out for 5000 tons of 80-lb. Rails for a spur connecting the proposed new smelter of the Anaconda Copper Mining Company, to be built at Tooele, Utah, but it is generally believed that this project is not far enough advanced to warrant the expectation of an immediate purchase. The local mills have specifications for over 50,000 tons of Open Hearth Rails, on which early shipment is wanted, and these will be turned out by the Gary mills, which are expected to start up some time in February. Against the contracts already entered other specifications are coming in at a fair rate, and the heavy Rail mill of the South Chicago Works, which has been idle since the first of the month, will doubtless be put in operation again within the next week or two. The buying of Spikes, Bolts and other track fastenings has been rather out of proportion to the Rail orders thus far placed, and it is observed that this foreshadows an unusual amount of relaying work by the railroads. A little better showing is made in Light Rail bookings, but, as compared with recent months, business is unsatisfactory. The prices are also irregular, and concessions of $1 to $2 a ton below the recognized level are not infrequent. We quote as follows: Angle Bars, accompanying Rail orders, 1909 delivery, 1.50c.; car lots, 1.60c.; Spikes, 1.80c. to 1.90c., according to delivery; Track Bolts, 2.15c. to 2.25c., base, Square Nuts, and 2.30c. to 2.40c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 25 to 45 lb., $26; 20-lb., $27; 16-lb., $28; 12-lb., $29. Standard Sections, Bessemer, $28; Open Hearth, $30, on lots of 500 tons and over; on smaller lots $2 a ton extra.

Structural Material.—Although somewhat slow in maturing, the prospects for a considerable amount of fabricating contracts from several Western cities are quite good; the indications being that orders aggregating a liberal tonnage will come into the market soon from these points. But few transactions of notable size were included in the orders taken by fabricators last week. Three contracts, including buildings for the Crane Company, Douglas Realty Company and Goldberg & Bowen Company, aggregating 1300 tons, were secured by Dyer Brothers, San Francisco. George W. Jackson, Inc., was the low bidder on two canal bridges let by the Sanitary Board, with a total of 567 tons, the price being $32,315. The purchase of 600 tons for the Federal Penitentiary, at Leavenworth, Kan., is anticipated. The largest prospective order in sight is for 8000 to 10,000 tons, which will be required for the construction of a new smelter to be built by the Anaconda Copper Mining Company, Tooele, Utah, and it is expected that the order for this material will be closed this week. The Santa Fé Railway has already fully specified against its recent contract with the American Bridge Company, and is exercising its option for taking considerable additional material. Local mills are getting a moderate amount of specifications, and are still running at part capacity. Prices from store are 1.95c. to 2c. Mill prices at Chicago are as follows: Beams and Channels, 3 to 15 in., inclusive, 1.78c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.78c.; larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 6 in. on one or both legs, 1.88c.; Beams, larger than 15 in., 1.88c.; Zees, 3 in. and over, 1.78c.; Tees, 3 in. and over, 1.83c.

Plates.—No heavy business, either in new orders or specifications, is coming out. Aside from occasional orders received from car shops, most of what is coming from mill as well as from store is in small lots, comprising specifications for special jobs. Jobbers report a volume of business in pick up orders about equal to that of last month. We quote mill shipments as follows: Tank Plates, ¼-in. and heavier, wider than 6¾ and up to 100 in. wide, inclusive, car lots, Chicago, 1.78c.; 3-16 in., 1.88c.; Nos. 7 and 8 gauge, 1.93c.; No. 9, 2.03c.; Flange quality, in widths up to 100 in., 1.88c., base, for ¼-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.88c.; Flange quality, 1.98c. Store prices on Plates are as follows: Tank Plates, ¼-in. and heavier, up to 72 in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in. up to 60 in. wide, 2.10c. to 2.25c.; 72 in. wide, 2.30c. to 2.40c.; No. 8, up to 60 in. wide, 2.10c. to 2.15c.; Flange and Head quality, 0.25c. extra.

Sheets.—There is a sagging tendency in the demand for Sheets, and mill buying is pretty closely confined to actual present needs, both in the case of jobbers and manufacturers. There is no disposition to buy ahead, and unless a marked quickening of trade develops within the next few days the bookings for January will not equal those of December. Mill prices are not without some unsteadiness and are being cut by some mills from $1 to $2 a ton. Store prices, on the other hand, are reported to be fairly firm at current quotations, which in extreme cases are sometimes shaded $1 a ton on round lot orders. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 1.98c.; No. 12, 2.05c.; No. 14, 2.08c.; No. 16, 2.18c.; Box Annealed, Nos. 17 to 21, 2.43c.; Nos. 22 to 24, 2.48c.; Nos. 25 and 26, 2.53c.; No. 27, 2.58c.; No. 28, 2.68c.; No. 29, 2.78c.; No. 30, 2.88c.; Galvanized Sheets, Nos. 10 to 14, 2.63c.; Nos. 15 and 16, 2.83c.; Nos. 17 to 21, 2.98c.; Nos. 22 to 24, 3.13c.; Nos. 25 and 26, 3.33c.; No. 27, 3.53c.; No. 28, 3.73c.; No. 30, 4.23c.; Black Sheets from store: Blue Annealed, No. 10, 2.15c.; No. 12, 2.20c.; No. 14, 2.25c.; No. 16, 2.35c.; Box Annealed, Nos. 18 to 21, 2.60c.; Nos. 22 to 24, 2.65c.; No. 26, 2.70c.; No. 27, 2.75c.; No. 28, 2.85c.; No. 30, 3.25c.; Galvanized from store: Nos. 10 to 16, 3c.; Nos. 18 to 20, 3.15c.; Nos. 22 to 24, 3.30c.; No. 26, 3.50c.; No. 27, 3.70c.; No. 28, 3.90c.; No. 30, 4.40c. to 4.45c.

Bars.—Interest in Steel Bars is almost wholly centered in the outcome of specifications, which are relatively better—as they have been for months past—than other mill products. At the same time, the first two weeks of the month witnessed some slowing up in orders, since which time there has been considerable improvement, as is shown in the recent entries of 1000 tons a day by the leading interest. The Bay View mills are running at about 75 per cent. of capacity. Some recent exchange deals have been put through by the mills, under which the railroads have contracted for Iron Bars. The

inquiry for 8000 tons, for which the Illinois Central Railroad was reported to have been in the market some weeks ago, is still pending, and the fact that it has not been placed argues the firm holding of prices. Quotations, Chicago, are as follows: Steel Bars, 1.58c., with half extras; Iron Bars, 1.50c.; Hoops, No. 13 and lighter, 1.98c., full extra Hoop card; Bands, No. 12 gauge and heavier, 1.58c., half extras, Steel Bar card; Soft Steel Angles and Shapes, 1.68c., half extras. Store prices are as follows: Bar Iron, 2c. to 2.15c.; Steel Bars, 1.90c. to 2c.; Steel Bands, 1.90c., as per Bar card, half extras; Soft Steel Hoops, 2.25c. to 2.35c., full extras.

Merchant Pipe.—Ordinarily, jobbers' stock orders include straight car lots of a size of small Pipe, but such orders have been for some time extremely scarce. Mixed car lots constitute the bulk of the business, which, although a little better than at the beginning of the month, is still of moderate volume. The following mill discounts are quoted: Black Pipe, ¾ to 6 in., 73.2; 7 to 12 in., 70.2; Galvanized, ¾ to 6 in., 63.2. From store, in small lots, Chicago jobbers quote 73 per cent. on Black Steel Pipe, ¾ to 6 in. About three points above these prices is asked for Iron Pipe.

Boiler Tubes.—Mill orders for Merchant Tubes are light, both in number and size. What few orders are being placed by the boiler shops are comprised mainly of specifications for contract jobs. Last week brought out a fairly good run of business in Locomotive Tubes, but the average for the month is disappointing. Mill quotations for future delivery, on the base sizes, are as follows: 2¾ to 5 in., inclusive, Steel Tubes, 63.2; Iron, 50.2; Seamless, 50.2; 2½ in. and smaller, and lengths over 18 ft., and 2½ in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1¼ in.	35	35	35
1¾ to 2¼ in.	50	35	35
2½ in.	52½	35	35
2¾ to 5 in.	60	47½	47½
6 in. and larger	50	35	..

Merchant Steel.—Some improvement is observed in the specifications offered by manufacturers and jobbers, but it is not pronounced enough to be at all significant. Very little is doing in Shafting, and concessions from ruling prices are being made to secure business. We quote as follows: Planished or Smooth Finished Tire Steel, 1.78c.; Iron Finish, up to 1½ x ½ in., 1.73c., base, Steel card; Iron Finish, 1½ x ½ in. and larger, 1.58c., base, Tire card; Channels for solid Rubber Tires, ¾ to 1 in., 2.08c., and 1⅛ in. and larger, 1.98c.; Smooth Finished Machinery Steel, 2.08c.; Flat Sleigh Shoe, 1.63c.; Concave and Convex Sleigh Shoe, 1.83c.; Cutter Shoe, 2.05c.; Toe Calk Steel, 2.13c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7¼c. to 8c., and still higher prices are asked on special grades. Cold Rolled Shafting in car lots and over, 57 per cent. off; in less than car lots, 52 per cent. off, with carload freight allowed within base territory.

Cast Iron Pipe.—The chief matter under consideration last week was the letting of 8000 tons by Kansas City, Mo., but all bids were rejected, and the lot was readvertised. A contract for 300 tons for Muscatine, Iowa, went to the United States Cast Iron Pipe & Foundry Company, which also secured 500 tons from Enid, Okla. A lot of 200 tons was awarded by Mound Ridge, Kan., to the American Cast Iron Pipe Company. The requirements of Minneapolis, Minn., on which bids were opened two weeks ago, will probably be awarded this week. A lot of 1000 tons for Minot, S. D., which was up last fall and not placed, will be up again in February for figures. A fair average of small routine orders is being entered, but there is little in sight for nearby letting. The shops of the leading interest are reported to be running at about 80 per cent. of capacity. We quote nominally per ton, Chicago, as follows: Water Pipe, 4 in., $28; 6 to 12 in., $27; 16 in. and up, $25, with $1 extra for Gas Pipe.

Metals.—The market lacks the stimulating influence of demand necessary to give it a firm tone. The small hand to mouth buying now going on is not calculated to create enthusiasm. Buyers see no reason for hastening to cover their forward requirements, and, until the supply already contracted for is exhausted, the big consumers are not likely to cut much figure in the trade. Although generally weaker, prices are unchanged. Quotations are as follows: Casting Copper, 14c. to 14¼c.; Lake, 14½c. to 14¾c., in car lots, for prompt shipment; small lots, ¼c. to ⅜c. higher; Pig Tin, car lots, 30c.; small lots, 34½c.; Lead, Desilverized, 4.35c. to 4.45c., for 50-ton lots; Corroding, 4.60c. to 4.70c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; Spelter, 5.10c. to 5.25c.; Cookson's Antimony, 10½c., and other grade, 9¾c. to 10¼c.; Sheet Zinc is $7, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, Crucible Shapes, 13¾c. to 14c.; Copper Bottoms, 12c.; Copper Clips, 12c.; Red Brass, 12¼c.; Yellow Brass, 9¾c.; Light Brass, 7¼c.; Lead Pipe, 4.30c.; Zinc, 3½c.; Pewter, No. 1, 21c.; Tin Foil, 23c.; Block Tin Pipe, 26c.

Old Material.—Last week's market was exceptionally quiet and uninteresting. The railroads had nothing to offer, and dealers' sales were practically limited to incoming track material, of which there was no large tonnage. The most suggestive feature of the market is observed in the freer offering of Country Scrap. Many of these stocks have been held for some time, and the banks are pressing for payment of maturing loans, which, on account of the sagging tendency of values, they are not anxious to renew. This is likely to result in forcing a great deal of material upon a yielding market which will naturally have more or less difficulty in assimilating it. No general attempt is being made by the large operators to dispose of the heavy stocks they now hold, since it is generally believed by these interests that reaction will come in time to make it worth while to hold on. About 6500 tons is included in a list to be offered this week by the Chicago, Burlington & Quincy, in which there are 1000 tons of Wrought Scrap and 680 tons of Rerolling Rails. The following prices are per gross ton, f.o.b. Chicago:

Old Iron Rails	$18.50 to $19.00
Old Steel Rails, rerolling	15.50 to 16.00
Old Steel Rails, less than 3 ft.	14.50 to 15.00
Relaying Rails, standard sections, subject to inspection	22.50 to 23.50
Old Car Wheels	15.50 to 16.00
Heavy Melting Steel Scrap	13.75 to 14.25
Frogs, Switches and Guards, cut apart	14.00 to 14.50
Mixed Steel	12.00 to 12.50

The following quotations are per net ton:

Iron Fish Plates	$16.00 to $16.50
Iron Car Axles	19.50 to 20.00
Steel Car Axles	18.00 to 18.50
No. 1 Railroad Wrought	13.50 to 14.00
No. 2 Railroad Wrought	12.75 to 13.25
Springs, Knuckles and Couplers	13.50 to 14.00
Locomotive Tires, smooth	14.50 to 15.00
No. 1 Dealers' Forge	10.50 to 11.00
Mixed Busheling	8.25 to 8.75
Iron Axle Turnings	8.25 to 8.75
Soft Steel Axle Turnings	8.25 to 8.75
Machine Shop Turnings	8.25 to 8.75
Cast Borings	7.00 to 7.50
Mixed Borings, &c	7.00 to 7.50
No. 1 Mill	8.25 to 8.75
No. 2 Mill	7.50 to 8.00
No. 1 Boilers, cut to Sheets and Rings	10.00 to 10.50
No. 1 Cast Scrap	13.00 to 13.50
Stove Plate and Light Cast Scrap	12.00 to 12.50
Railroad Malleable	12.50 to 13.00
Agricultural Malleable	11.00 to 11.50
Pipes and Flues	10.00 to 10.50

St. Louis.

ST. LOUIS, January 23, 1909.

In both Pig Iron and Coke, large buyers are not in the market to any extent. On the other hand, producers are not anxious sellers, and the absense of quotations for the second half of the year is taken to indicate the possibility of higher prices. The demand for structural material is light, but the outlook for spring trade is good. Merchant handlers of metal working machinery report an excellent inquiry from the South and Southwest, and some good sales are being made. The prospect is the best in some months. C. L. Holman, secretary of the Laclede Gas Company, states that in event of certain franchises being granted by the city, in consideration of the payment of $20,000, the company will erect an immense gas plant, at a cost of between $10,000,000 and $15,000,000. This plant will replace all of the company's present gas-making apparatus, except storage tanks in various parts of St. Louis.

Coke.—It was expected by some of the trade that when the Coke that was loaded at the ovens which had to be forced off to some extent, owing to the new ruling of the railroads, cutting down the time cars could stand on tracks, was disposed of a firmer market would obtain for spot Coke. The milder weather, however, which has prevailed of late has operated, through the ability to increase stocks, to prevent better prices being realized. The understanding reported to have been entered into for the purpose of curtailing manufacture tends to steady the market. Inquiry is fairly good, though principally for small lots, and sales as reported by the various offices are being made to the smaller consumers. A large seller reports that a customer has requested shipment to be anticipated on 500 tons. Other houses state that specifications on contracts are coming in freely. The tone of the market reflects some uncertainty, owing to conflicting reports. We quote at the close of the week as follows: For 72-hr. Standard Connellsville, f.o.b. oven, $2.10, for spot; $2.25 for first half; $2.35 for entire year; New River, $2.50, f.o.b. oven, for entire year.

Pig Iron.—Nearly all the business which has come in during the week, whether inquiries or sales, has been from outside and for small lots. One house reports an inquiry for 500 tons of Lake Superior Charcoal and 400 tons of Malleable Bessemer. There is also some inquiry for low grade Iron, especially No. 4. Specifications on contracts are coming in quite well. There seems to be some disposition on the part of both the furnaces and large buyers to rest on their oars and see what is going to transpire in the general market. The only change reported in prices is that No. 2 Southern Foundry is obtainable at $13, Birmingham, for shipment over the first half, though it is not believed that for shipment

over the second quarter Standard Iron can be bought at less than $13.25. Ohio Iron is quoted at $15.50 to $16, Ironton, for No. 2; Northern Silvery 8 per cent. Silicon, $18.50 to $19, at Jackson County furnaces.

Finished Iron and Steel.—The demand for Structural Steel is confined to fabricators, and is moderate in volume. For Bars and Bar products the demand from jobbers has improved, with also a fair inquiry from manufacturers. Light Rails are still selling well, and Track Material is in good request.

Old Material.—Dealers in Old Material, though fairly busy, state that there are no large buyers in the market, and as not much new business is passing, except for Old Steel, prices on some lines have declined. From the figures named below, to move round lots, concessions would likely have to be made, governed to some extent by the position of the material sought for. Offerings by the railroads were not large. The Wabash Railroad list is out, with 600 tons, and the San Francisco, with 200 tons. Relaying Rails continue firm, and in demand. We quote, per gross ton, f.o.b. St. Louis, as follows:

Old Iron Rails	$16.50 to $17.00
Old Steel Rails, rerolling	14.75 to 15.25
Old Steel Rails, less than 3 ft	14.25 to 14.75
Relaying Rails, standard sections, subject to inspection	24.00 to 24.50
Old Car Wheels	16.50 to 17.00
Heavy Melting Steel Scrap	14.25 to 14.75
Frogs, Switches and Guards, cut apart	14.75 to 15.25
Mixed Steel	10.25 to 10.75

The following quotations are per net ton:

Iron Fish Plates	$16.00 to $16.50
Iron Car Axles	20.00 to 20.50
No. 1 Railroad Wrought	14.00 to 14.50
No. 2 Railroad Wrought	13.00 to 13.50
Railway Springs	12.50 to 13.00
Locomotive Tires, smooth	13.50 to 14.00
No. 1 Dealers' Forge	11.50 to 12.00
Mixed Borings	7.00 to 7.50
No. 1 Boilers, cut to Sheets and Rings	10.00 to 10.50
No. 1 Cast Scrap	13.00 to 13.50
Stove Plate and Light Cast Scrap	10.50 to 11.00
Railroad Malleable	12.00 to 12.50
Agricultural Malleable	10.50 to 11.00
Pipes and Flues	10.50 to 11.00
Railroad Sheet Scrap	11.50 to 12.00
Railroad Grate Bars	11.50 to 12.00
Machine Shop Turnings	9.50 to 10.00

Lead, Spelter, Etc.—Pig Lead is in fair demand, and held at 4.07½c. to 4.10c. Lead Ore is higher. We quote $26.50 to $27.25 per 1000 lb., Joplin basis. The district is about cleaned up, and there is no surplus being carried. The demand for Spelter is quite good. For galvanizing purposes the market is 5.02½c. to 5.12½c., St. Louis; Brass metal, 5.22½c. to 5.25c. Zinc Ore is strong, at $43, base, per ton. The general outlook is good for an increased demand. Current prices are below cost of production. Tin is 1-3c. higher; Copper ¼c. lower; Antimony, 2½c. per 100 lb. lower.

The Atlas Mfg. & Stamping Company is a new St. Louis corporation with a capital of $50,000. It will engage in the manufacture of galvanized Iron and laundry machinery, and will soon build a modern plant.

The Mississippi Valley Iron & Furnace Company has recently taken a suite of offices in the Wright Building. It is opening its mines and making deliveries of Iron Ore to Missouri plants. In the near future the company will build a furnace in St. Louis territory and equip the plant with modern facilities. Manager Burton states that the brown Ores average 56 per cent. metallic Iron, and the blue specular averages 64 per cent.; in fact, the latter is claimed to be the original Iron Mountain Ore.

San Francisco.

SAN FRANCISCO, CAL., January 13, 1909.

A feeling of encouragement is observed throughout nearly all branches of the Iron and Steel trades. The past 10 days have brought out enough business to satisfy the local merchants that their predictions regarding the present year have been well founded. From all appearances there will be more business in the early months of the year in the northern section of the coast than in the territory south of San Francisco. A fair tonnage of Rails will probably be required in the south and purchases of both Cast Iron and Wrought Pipe are being made from time to time for Los Angeles, but aside from this the movement in that section is confined to narrow limits. Inquiries for Merchant Pipe from the oil fields have so far been disappointing. In the north numerous railroad and development projects are being carried out, while a general revival has taken place in the lumber trade. Most of the sawmills of the coast are now in the market for more or less machinery. One of the northern mills recently destroyed by fire is to be rebuilt and several new equipments are to be installed in the next few months. One of the California redwood mills is doubling its capacity, and nearly all of them added to their equipment during the holiday shutdown. Machinery dealers report a very noticeable improvement since the first of December and a still greater increase of business since the first of the year. The mining interests, which held back their orders during the fall, are now out with numerous inquiries. The demand for Light Rails for the mining and lumbering interests exhibits some increase, though not much as yet. While immediate conditions in Pig Iron and Old Material are unchanged, a better feeling is observed in regard to these articles. Several new contracts for Structural Material have been taken since the first of the year, and a number of others are in immediate prospect. So far no important tonnage of Standard Rails and Track Supplies has been placed, and recent developments indicate that there may be considerable delay in closing contracts.

Structural Material.—The building record for December was poor, the total of permits reaching only $1,853,542, the smallest of the year. The falling off was apparently due to holiday conditions, as a few contracts of some importance for Structural Steel work have been let in the last week, and figures have been submitted on several other inquiries which will probably be closed within a few days. Local fabricators and dealers in Structural Shapes take a highly optimistic view of the outlook for this year, as there are plenty of plans on hand which will be carried out as soon as the requisite money can be secured. A large amount of municipal work also remains to be done, and some of it will probably be given out within the next six months. A large proportion of the local work continues to be done by coast fabricators, who are prepared to handle small to medium sized contracts at comparatively low prices, notwithstanding the high cost of labor. The San Francisco harbor improvements are also taking a considerable tonnage of both Structural Material and reinforcing Bars for concrete work. It is expected that the State will issue bonds to the extent of about $10,000,000 to carry on this work. The Pacific Rolling Mill Company has taken a contract for about 500 tons for the Southern Pacific improvements at Dumbarton, at the upper end of San Francisco Bay. A contract in immediate prospect is for a 10-story building for the Crane Company on Second street. Plans are now ready for the 10-story Kohler & Chase Building at O'Farrell street and Bagley place, and contracts will be let as soon as possible. A good sized contract for a three-story structure covering a large lot at the corner of Eddy and Market streets is pending. The building will cost $250,000 and the Steel will be heavy enough to support additional stories. A similar structure will soon be erected at the corner of Market and Jones streets. Bills have been introduced in the State Legislature to provide for numerous school, armory and hospital buildings, including $125,000 for another addition to the insane asylum at Agnews. Armour & Co., Chicago, are planning to erect a nine-story building covering a lot 106 x 120 ft. in Seattle, Wash. There is a decidedly better tone to the market on Iron and Steel Bars for concrete reinforcing. Prices are higher since the first of the year and inquiries have already been received for a fair tonnage.

Pig Iron.—Few transactions have taken place in Pig Iron since the first of the year and buyers are taking only small quantities for immediate requirements. The larger foundries are well stocked and it appears that few of them are likely to be in the market to any extent this year. Purchases are being made only by the smaller foundries, which have been carrying little or no surplus stock. Under such conditions prices show little improvement, though the pressure to sell is hardly as marked as it was a few weeks ago. Stocks are not being increased and some holders are disposed to look for higher prices within the year. More work is being done at most of the foundries, and there is a prospect of much greater activity later in the year. The city will require a large amount of Cast Iron work in connection with the auxiliary water system, aside from the Pipe and turbines, and estimates are now being made of the capacity of local foundries for turning out such castings as may be needed at short notice. The prospect of increased consumption is causing a little firmer undertone in the market, though prices remain low. Sales are made at a wide range of figures, according to circumstances, but the quotations of $21 to $25 will about cover the current transactions in ordinary grades.

Cast Iron Pipe.—Few inquiries for Cast Iron Pipe have come out since the first of the year, and at the moment only a limited tonnage is moving. Aside from an order from the Los Angeles Gas & Electric Company for 4000 lengths of 4-in., 4000 of 6-in., 1000 of 8-in. and 250 of 10-in. Gas Pipe, no contracts worthy of mention have been let. An inquiry is out for the city of Los Angeles for 8400 ft. of 6-in. Water Pipe, the contract to be let about the end of the month. Prices are stronger and for the moment buyers are inclined to hold off, though there is a prospect that a considerable tonnage will be required within the next few months. Extensions to the water system of Alameda County are badly needed and may be made in the near future. The outlook in the interior of California and the Northern States is most promising, as most of the municipalities which have used Steel or wood Pipes in the past are in need of new and more extensive systems, and are looking with more favor on Cast Iron Pipe. Prices are quoted as follows: 4-in., $36;

8 to 12 in., $35; $1 extra for Gas Pipe. The quotations are the same as have formerly been given, but are more firmly adhered to than for many months and a still stronger market is expected.

Merchant Pipe.—The movement of Merchant Pipe so far in January only slightly exceeds that of the latter part of December, and the business so far shows little life. The requirements of the oil fields are small, as development in that section is retarded by the wet weather, though a large tonnage will doubtless be required within a few months. The movement from manufacturer to jobber is of small proportions, as many of the jobbers are still taking inventories, but some liberal orders for stock are expected by the end of the month. The present dullness is partly attributed to the fact that the jobbers are asking firmer prices than a month ago and purchasers are holding off as long as possible. The city of Los Angeles has ordered a small lot of 2-in. Black Iron Pipe, and is in the market for a lot of Casing and Galvanized Pipe. Otherwise there are no inquiries of any individual importance. Jobbers' discounts on carload lots are as follows:

	Steel. Black.	Galv.
	%	%
⅛ to ¼ in.	56.5	40.5
⅜ in.	58.5	44.5
½ in.	60.5	48.5
⅜ to 6 in.	64.5	54.5
7 to 12 in.	61.5	46.5
Extra strong, plain ends:		
⅛ to ⅜ in.	49.5	37.5
½ to 4 in.	56.5	44.5
4½ to 8 in.	52.5	40.5
Double extra strong, plain ends:		
½ to 8 in.	45.5	34.5

Old Material.—Prices on Old Material show little improvement, though there is a somewhat firmer tone to the market and the movement is more general than it has been for several months. The foundries look for a great increase of business, including municipal work, for which they can use considerable Cast Scrap. Dealers are accordingly inclined to hold out for better prices on this material, comparatively little of which is now being offered at current prices. The figures established by recent transactions for good Machinery Scrap are about $15 to $16. A considerable addition to the stock of old Structural Material will be made by the wrecking of the old City Hall, work on which has been started by the Wm. B. Abbitt Construction Company.

A local real estate dealer announces that Eastern capitalists are negotiating for the Fulton Iron Works plant and site at Ocean View, near the San Francisco Presidio.

Harron, Ricard & McCone, machinery dealers, expect to get into permanent quarters next May, and thereafter will carry a full stock of drill Steel.

The contract for the new $800,000 steamer for the Matson Navigation Company has been let to the Newport News Shipbuilding Company. The vessel will be 430 ft. long, 51 ft. beam, and will have a capacity for 3000 tons of freight and a speed of 15 knots.

Construction has been started on the Puget Sound Navy Yard new dry docks.

Philadelphia.

PHILADELPHIA, PA., January 26, 1909.

The market continues dull in all lines. While deliveries on contracts are being taken quite freely, consumers are unwilling to make further purchases for extended delivery until future conditions can be more accurately sized up. Structural Material is probably the only line in which there has been any real improvement, the other lines of rolled products just about holding their own. Old Material has shown a further decline in the leading grades, and the efforts recently noted on the part of sellers to hold prices are not so pronounced.

Pig Iron.—Transactions have been very light. The bulk of the business transacted during the week has been in the Foundry grades, and in the majority of cases the quantities taken have been comparatively small. Melters show no disposition to buy for forward delivery, but in nearly every instance are taking deliveries freely, which would indicate that the melt was about holding its own. There seems to be a disposition to move slowly, particularly as hesitancy is shown by consumers in placing business, and while there has been some further inquiry for moderate quantities for second quarter before the trade, no business of moment has been placed, and it is thought that they have been largely for the purpose of testing the market, which continues remarkably firm in the absence of fresh business. The position of the Eastern producers continues strong. Production during January will, no doubt, show an increase, but stocks on furnace banks have not appreciably increased, even though orders have fallen off, this being due to regular and heavy deliveries on contracts. Prices have been very firmly maintained on all standard eastern Pennsylvania grades, and while some producers would extend deliveries on the present basis, others still refuse to consider inquiries for forward shipment. Sales during the past week have been individually small, Foundry grades selling in small quantities for prompt shipment, with a few lots ranging up to 750 to 1000 tons for second quarter delivery, at prices ranging from $17.25 to $17.50, delivered, for No. 2 X Foundry. The Cast Iron Pipe makers are still in the market for low grade Irons, but they are hardly as urgent as they were several weeks ago. These grades are still scarce. Virginia Irons continue inactive, some small lots having been sold at full prices, but not much business is being offered. The situation in Southern Iron continues unchanged, producers maintaining the $13, Birmingham, basis for No. 2, and while it is understood that resale Iron for prompt shipment can be had in moderate lots at a shade less, no large sales have been announced. Forge Iron has been dull, as rolling mills have not been operating very regularly, and the demand from them has been light. The demand for Steel making grades shows no particular betterment, as far as immediate sales are concerned. Basic Iron for second quarter delivery is still before the trade, but consumers appear to be in no haste to place orders. Low Phosphorus Iron has been practically uncalled for. Notwithstanding the dullness in every grade, prices continue to be firmly maintained. Sellers are pretty well booked up for their output for the next 30 or 60 days and are not forcing business, the following range of prices being quoted for delivery in buyers' yards, eastern Pennsylvania and nearby territory, during the next three months:

Eastern Pennsylvania, No. 2 X Foundry	$17.25 to $17.50
Eastern Pennsylvania, No. 2 Plain	16.75 to 17.00
Virginia, No. 2 X Foundry	17.50
Virginia, No. 2 Plain	17.00 to 17.25
Gray Forge	16.00 to 16.50
Basic	16.75 to 17.00
Low Phosphorus	21.50 to 21.75

Ferromanganese.—Local consumers appear to be out of the market. An inquiry is out for 500 tons for Western delivery over the second half of the year. Prices are unchanged, $43.75 to $44.50, Baltimore, being named for prompt and $44.50 to $45.50 for forward deliveries.

Billets.—The demand is still light and orders are small, the maximum ranging around 50-ton lots, practically all the business placed being for prompt shipment. Prices are unchanged, Ordinary Rolling Steel for delivery in this territory being quoted at $26.20, with Forging Steel $28.20, subject to the usual extras for high carbons and special shapes.

Plates.—Business continues on about an even basis. Orders are irregular, however, and cover a varied range. Some tonnage of boat, structural and marine boiler Steel has been placed, but the individual specifications have not been large. Prices in the East continue firm. Some cutting, however, on the part of producers outside this territory is reported, but on narrow sizes only, which have been offered at prices ranging from $1 to $1.50 below the market. The following range is being named by Eastern mills, for delivery in buyers' yards in this territory:

	Carloads. Cents.	Parts carloads. Cents.
Tank, Bridge and Boat Steel	1.75	1.80
Flange or Boiler Steel	1.85	1.95
Commercial Firebox	1.95	2.00
Marine	2.15	2.20
Locomotive Firebox Steel	2.25	2.30

The above are base prices for ¼-in. and heavier. The following extras apply:

	Extra per 100 lb.
3-16-in. thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 in.	.05
Plates over 110 to 115 in.	.10
Plates over 115 to 120 in.	.15
Plates over 120 to 125 in.	.25
Plates over 125 to 130 in.	.50
Plates over 130 in.	1.00

Structural Material.—There has been a fair volume of miscellaneous business, largely from the building trades, and the mills show a little more activity. Proposals for the addition to the Union League, requiring about 1000 tons, will be opened this week, while several propositions requiring a greater tonnage are expected to develop in the very near future. Mills, as a rule, are more activtly engaged and prices are well maintained, 1.75c. to 1.90c. being quoted, according to specification for delivery in this territory.

Sheets.—Buying is not quite so active, and some of the mills, while running full, are accumulating stock. Business continues largely of a hand to mouth nature, and makers have but little booked, practically all orders being for prompt shipment. Quotations for mill shipments, a tenth extra being added for small lots, range as follows: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 to 26, 2.70c.; No. 27, 2.80c.; No. 28, 2.90c.

Bars.—Consumers place orders sparingly, the orders coming out being small, with the tendency along conservative lines. Individual orders are principally for prompt shipment. Prices, however, are quite firm, Refined Iron Bars for delivery in this territory being quoted at 1.55c. to 1.60c., with Steel Bars 1.55c.

Coke.—The demand is light, and prices show a declining tendency. Production is larger than consumption, and prices

have in instances been shaded slightly, particularly for prompt shipment. Foundry Coke is quoted at $2 to $2.25, at oven, according to grade, with Furnace Coke $1.60 to $1.85, at oven. For delivery in this territory prices show the following range:

Connellsville Furnace Coke	$3.85 to $4.10
Foundry Coke	4.25 to 4.50
Mountain Furnace Coke	3.45 to 3.70
Foundry Coke	3.85 to 4.10

Old Material.—A further softening in the prices of the majority of the leading grades is noted. Several 1000-ton lots of Heavy Melting Steel have been taken by different melters at $16.50 to $17, delivered, and in one case the inside figure is said to have been shaded. A number of the consumers of this grade are out of the market and one mill has temporarily suspended deliveries. In the other grades hardly enough business has been done to establish quotations. Prices are weaker and consumers' bids range from $1 to $1.50 below recent quotations. Under the circumstances prices are nominally quoted as follows for prompt delivery in buyers' yards, eastern Pennsylvania and nearby territory:

No. 1 Steel Scrap and Crops	$16.50 to $17.00
Low Phosphorus	20.00 to 21.00
Old Steel Axles	22.50 to 23.00
Old Iron Axles	24.25 to 24.75
Old Iron Rails	19.50 to 20.00
Old Car Wheels	16.00 to 17.00
Choice No. 1, R. R. Wrought	18.50 to 19.00
Machinery Cast	15.50 to 16.00
Railroad Malleable	15.75 to 16.25
Wrought Iron Pipe	15.25 to 15.75
No. 1 Forge Fire Scrap	13.75 to 14.25
No. 2 Light Iron	10.00 to 10.50
Wrought Turnings	13.00 to 13.50
Stove Plate	13.75 to 14.25
Cast Borings	12.00 to 12.50
Grate Bars	14.50 to 15.00

The Eastern office of the Superior Steel Company, Carnegie, Pa., which has been located at 107 West Lehigh avenue, has been removed to 1509 Real Estate Trust Building, Philadelphia. E. W. Harrison, vice-president, is in charge, looking after the Eastern business of the company.

Pittsburgh.

PARK BUILDING, January 27, 1909.—(*By Telegraph.*)

Pig Iron.—While there is a fair amount of inquiry, it is mostly for small lots for current needs. Reports that a leading local consumer had bought a round tonnage of Basic for February, March and April delivery are untrue. Actual sales being made are in small lots only, ranging from 100 to 400 tons. Prices on Bessemer and Foundry Iron seem to be weaker, but Basic is fairly strong. We quote standard Bessemer Iron at $16.25, Valley furnace, but on a firm offer it is likely that $16 could be done. We quote Malleable Bessemer at $15.75; Basic, $15.50; No. 2 Foundry at $15.25 to $15.50, and Gray Forge at $14.50, all at Valley furnace, the freight rate to Pittsburgh being 90c. a ton.

Steel.—A local interest reports a sale of 3000 tons of Bessemer Billets, deliveries extending over the next four months, at $25, Pittsburgh. Not much new business is being placed, nearly all consumers being covered by contracts against which they are specifying at a fairly satisfactory rate. We quote Bessemer and Open Hearth Billets, 3⅞ in. and larger, up to and including 0.25 carbon, $25; 0.26 to 0.60 carbon, $1 extra; over 0.60 carbon, $2 extra, all f.o.b. Pittsburgh. For Wheeling, Martin's Ferry, Follansbee, Newcastle, Sharon, Steubenville and Washington (Pa.) delivery, half the freight, or 50c. additional, is charged. Sheet and Tin Bars in random lengths are $27.50, f.o.b. Pittsburgh. Forging Billets take $2 advance over Rolling Billets.

(*By Mail.*)

While basic conditions in the Steel trade are regarded as absolutely sound, money being plentiful, collections reported as fairly good, stocks of all kinds of Iron and Steel all over the country lighter than for years, and the railroads only casual buyers for about 16 months, yet for some reason the Steel trade does not take on activity, but remains in a very quiet condition. The principal reason put forth for the failure of the situation to improve is the coming revision of the tariff, but after all it is a good deal of a question whether this is not being exaggerated, and after expected reductions in the tariff have been made it is doubtful whether any material reductions in present prices of Iron and Steel will be required. To a close observer, however, the impression is getting stronger that the large Steel interests might possibly best serve their own interests by making a reduction in prices, and then start in at the ground floor and work up. This view is shared by some of the largest consumers, who state that there is now no incentive for either jobbers or consumers to anticipate requirements. The mills are able to fill orders promptly, there being little, if any, probability of higher prices, while all conditions would seem to favor lower values if any change is made. Whatever the reasons are, the fact remains that conditions in the Steel trade are far from satisfactory, new orders entered so far this month being a distinct disappointment and much smaller in volume than expected. The tone of the whole market is only fairly strong, and the impression seems to be well grounded that quiet concessions in prices on some lines of Iron and Steel are being made, where it seems policy to do so, in order to bring out tonnage. These cuts in prices are not excessive, probably not over $1 to $2 a ton, but they are being made right along and are irritating to concerns which are trying to hold the market at its present level, and find orders slipping away from them that they regard as belonging to them.

Ferromanganese.—A sale of 25 tons of foreign 80 per cent. Ferro has been made here for prompt delivery at $44, seaboard, or $45.95, Pittsburgh. Inquiries have been very light for some time.

Ferrosilicon.—A local consumer has bought 50 tons of 50 per cent. on the basis of about $62.25 to $62.50, delivered, Pittsburgh.

Muck Bar.—The demand is stagnant. Prices are not as strong as they were, and we quote best grades of Muck Bar made from all Pig Iron at $27.50 to $28, Pittsburgh.

Wire Rods.—While a fair amount of new inquiry is noted, specifications against contracts are not coming in as well as they were. This is probably due to the quiet condition of the Wire and Chain trades, which are the largest consumers of Rods. It is stated that regular prices are being held, which are $33 for Bessemer Rods, $33 for Chain Rods and $34 for Basic Rods, Pittsburgh.

Steel Rails.—Unofficial advices are that the New York Central, which includes the Lake Shore, has placed 90,000 tons and the Baltimore & Ohio 40,000 to 60,000 tons of Rails for delivery this year, but official confirmation has not reached here as yet. The Carnegie Steel Company is now turning out Rails against specifications on the Pennsylvania and Chesapeake & Ohio contracts, and its Rail output is larger than for some time. The demand for Light Rails is fair, but last week actual orders and specifications dropped off, the Carnegie Company getting only about 1000 tons. Prices on Rerolled Light Rails are still $2 to $3 a ton under Light Rails rolled from Billets. Prices on new Light Rails, rolled from Billets, are as follows: $25 for 25 to 45 lb. Sections, with $1 advance for 20 lb., $2 advance for 16 lb., and $3 advance for 12 lb. Standard Sections are $28, at mill, and Angle Splice Bars, 1.65c., at mill.

Skelp.—Few new inquiries are in the market, but the mills rolling Grooved and Sheared Iron Plates are pretty well filled up for several months. We quote: Grooved Steel Skelp, 1.45c. to 1.50c.; Sheared Steel Skelp, 1.50c. to 1.60c.; Grooved Iron Skelp, 1.75c. to 1.80c., and Sheared Iron Skelp, 1.90c. to 1.95c., Pittsburgh. We note sales of 1500 to 2000 tons of Sheared Iron Plates at about 1.90c., Pittsburgh.

Plates.—Reports are that the Chesapeake & Ohio has placed an order for 500 all-Steel gondola cars with the Standard Steel Car Company, the Plates and Shapes, about 12,000 tons, to be rolled by the Carnegie Steel Company. The latter interest is now working on specifications for Plates and other Shapes for other Steel car orders, and is operating its Plate mills at Homestead to fuller capacity than for some time. The general demand for Plates is light, and there does not seem to be much prospect of betterment in the near future. Prices are still being shaded as much as $2 a ton by some mills, but is confined mostly to narrow sizes. Prices for mill shipment are as follows: Tank Plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.60c., base, at mill, Pittsburgh. Extras over this price are as follows:

Tank, Ship and Bridge quality, ¼-in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel Plates up to 72 in. wide, inclusive, ordered 10.2 lb. per square foot, shall be considered ¼-in. Plate. Steel Plates over 72 in. wide must be ordered ¼-in. thick on edge, or not less than 11 lb. per square foot, to take base price. Steel Plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on Plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. Plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Firebox Steel Plates	.20
Still Bottom Steel	.30
Marine Steel	.40
Locomotive Firebox Steel	.50
Shell grade of Steel is abandoned.	
For widths over 100 in. up to 110 in.	.05
For widths over 110 in. up to 115 in.	.10
For widths over 115 in. up to 120 in.	.15
For widths over 120 in. up to 125 in.	.25
For widths over 125 in. up to 130 in.	.50
For widths over 130 in.	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.50c., f.o.b. Pittsburgh.

Structural Material.—Little new work is coming out. The Cambria Steel Company has taken the contract for the Wick Block at Youngstown, 1000 to 1200 tons, and the Thompson-Starrett Company has taken the Jenkins Building in this city, about 400 tons, but the material has not yet been placed. The largest local job in sight is the grand stand for the new baseball park in the Oakland District,

about 1200 tons, on which bids will be asked shortly. Leading Structural interests report they are operating to only 30 to 35 per cent. of capacity, and in some cases less. We quote, f.o.b. mill, Pittsburgh: I-Beams and Channels, 3 to 15 in., inclusive, 1.60c., net; I-Beams over 15 in., 1.70c., net; H-Beams over 8 in., 1.80c.; Angles, 3 to 6 in., inclusive, ¼ in. and up, 1.60c., net; Angles, over 6 in., 1.70c., net; Angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, Steel Bar card; Tees, 3 in. and up, 1.65c., net; Zees, 3 in. and up, 1.60c., net; Angles, Channels and Tees under 3 in., 1.50c., base, half extras, Steel Bar card; Deck Beams and Blub Angles, 1.90c., net; Hand Rail Tees, 3c., net; Checkered and Corrugated Plates, 3c., net.

Sheets.—The better demand for Sheets noted last week does not seem to have been maintained, as this week the American Sheet & Tin Plate Company is operating only 50 per cent. of its capacity. This represents about the rate at which other Sheet mills are running. Some mills are inclined to shade prices, which they are doing in special cases to the extent of about $2 a ton. Regular prices for mill shipment are as follows: Blue Annealed Sheets, No. 10 and heavier, 1.80c.; Nos. 11 and 12, 1.85c.; Nos. 13 and 14, 1.90c.; Nos. 15 and 16, 2c.; Box Annealed, Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.60c.; No. 30, 2.70c. Galvanized Sheets, Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.65c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.70c.; No. 30, 3.95c.; No. 28, Painted Roofing Sheets, $1.75 per square, and Galvanized Roofing Sheets, No. 28, $3.10 per square, for 2½-in. corrugations. These prices are subject to a rebate of 5c. per 100 lb. to the large trade, under the usual conditions, jobbers charging the usual advances for small lots from store.

Tin Plate.—Reports that the American Sheet & Tin Plate Company would add 10 hot mills to its Sabraton, W. Va., plant, are officially denied. Specifications against contracts for Bright Plate placed last fall and in the early winter by the salmon packing and canning interests are coming in nicely, and this week the American Sheet & Tin Plate Company is operating 67 per cent. of its Tin mill capacity. There is some unevenness in prices. While the practice is not general, some orders are being booked at less than the official price. Regular prices are as follows: $3.70 for 100-lb. Cokes, 14 x 20, f.o.b. Pittsburgh, terms 30 days, less 2 per cent. off for cash in 10 days, this price being subject to the usual rebate of 5c. per base box in large lots.

Bars.—New orders for both Iron and Steel Bars are light, and but for the fact that specifications against contracts are coming in at a fairly satisfactory rate, the mills would have little work. As it is, shipments on specifications against contracts are fairly heavy. As yet there is no disposition on the part of jobbers or consumers to carry larger stocks. The tone of the market is strong, and it is stated that prices on both Iron and Steel Bars are being maintained. We quote Iron Bars at 1.42c., Pittsburgh, for Western shipment, or 1.60c., Chicago, while the price for delivery in the Pittsburgh District is 1.50c. Iron Bars rolled from strictly Muck Bar stock, such as Zug, Lockhart and a few others, are held at about 1.90c., at mill. Steel Bars are firm, at 1.40c., Pittsburgh, for base sizes.

Hoops and Bands.—Another interest has appeared as a producer of Hoops and Bands, this being the West Leechburg Steel Company of Pittsburgh, with works at West Leechburg, Pa., which is now soliciting orders for delivery this year. The demand is quiet, consumers not yet having started to place their season's contracts. It is not expected that the demand for Hoops and Bands will be as heavy as in former years, owing to the fact that so many districts have recently gone for prohibition, which materially reduces the consumption of Hoops and Bands by liquor manufacturers. Regular prices still in force are as follows: Steel Hoops, 1.80c., base, full Hoop card prices; Steel Bands, 1.40c., base, half Steel card extra, all f.o.b. cars, Pittsburgh, in carload lots, for delivery during 1909.

Railroad Spikes.—The expected large orders from the railroads have not been placed. Several are reported to be negotiating for their year's supply, but local makers are averse to selling for delivery throughout the year at present prices, believing that the market may improve later on. There is a fair demand for the smaller sizes on which the mills are pretty well filled up. Prices are firm, but unchanged, and we quote: Standard sizes, 4½ x 9-16 in., at $1.70, and the smaller sizes at $1.80 per 100 lb., in carload and larger lots, with an advance of 5c. per 100 lb. for less than carload, f.o.b. Pittsburgh.

Merchant Steel.—New orders are light and for small lots for actual needs, while specifications against contracts have not been coming in at a satisfactory rate for some time. The situation in Merchant Steels and in Shafting is quieter than for some months. It is stated that prices on Shafting are being fairly well maintained on the basis of 57 per cent. off in carloads and 52 per cent. in less than carloads delivered in base territory. Prices on Merchant Steels are largely nominal and are about as follows: Smooth Finished Machinery Steel, 1.80c. to 1.90c.; Flat Sleigh Shoe, 1.75c. to 1.85c.; Cutter Shoe Steel, 2.15c. to 2.25c.; Toe Calk, 1.90c. to 1.95c.; Railroad Spring Steel, 1.60c. to 1.75c., the higher prices being for Pennsylvania Railroad analysis. Carriage Spring Steel is 1.80c.; Tire Steel, Iron finish, 1½ x ½ in. and heavier, 1.40c.; under 1½ in., 1.55c. Planished Tire Steel is 1.60c., all f.o.b. at mill.

Spelter.—A local consumer last week placed its requirements in Spelter for February and March, about 100 tons, on the basis of 5c., East St. Louis, but the market to-day is slightly weaker, and we quote prime grades of Western at 4.95c., East St. Louis, or 5.12½c., Pittsburgh.

Merchant Pipe.—This is always the dullest season of the year in the Pipe trade. Two large inquiries for line Pipe have been in the market for some time—one from the Ohio Fuel Supply Company for about 80 miles of 10, 12 and 16 in., and another from the Pittsburgh-Buffalo Company for 10 miles of the same sizes—but they continue to be held up. A local interest has sold 13,000 ft. of 2-in. and 12,000 ft. of 3-in. Pipe, for delivery in Chelsea, Okla. Jobbers are still carrying low stocks and are placing frequent orders, but mostly for small lots. It is stated that the regular prices on both Iron and Steel Pipe are being maintained. A. M. Byers & Co., Inc., Pittsburgh, makers of Iron Pipe exclusively, have started their new puddling plant at Girard and will ship the product to their Pittsburgh Works to be made into Iron Pipe. Discounts on Steel Pipe, ¾ to 6 in., to the large trade, are 75 and 5 per cent. off list, while a few of the very largest jobbers, that have mill connections, are given 76 and 5 per cent. off list. Regular discounts are as follows:

Merchant Pipe.

	Jobbers, carloads, Steel.	
	Black.	Galv.
	%	%
⅛ to ¼ in.	67	51
⅜ in.	69	55
½ in.	71	59
¾ to 6 in.	75	65
7 to 12 in.	72	57
Extra strong, plain ends:		
⅛ to ⅜ in.	60	48
½ to 4 in.	67	55
4½ to 8 in.	63	51
Double extra strong, plain ends:		
½ to 8 in.	56	45

Discounts on Genuine Iron Pipe are as follows:

	Black.	Galv.
	%	%
⅛ to ¼ in.	65	..
⅜ in.	67	53
½ in.	69	57
¾ to 6 in.	73	63
7 to 12 in.	70	55
Extra strong, plain ends:		
⅛ to ⅜ in.	58	46
½ to 4 in.	65	53
4½ to 8 in.	61	49
Double extra strong, plain ends:		
½ to 8 in.	54	43

Boiler Tubes.—Absolutely no betterment is seen in the demand for either Locomotive or Merchant Tubes. Discounts on Merchant Tubes are merely nominal, and are being shaded on any orders being placed. These discounts, which do not represent actual prices, are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1¼ in.	42	47
1¾ to 2¼ in.	42	59
2½ in.	47	61
2¾ to 5 in.	52	65
6 to 13 in.	42	59

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Iron and Steel Scrap.—It is stated that three or four of the largest consumers of Scrap have allowed their stocks to run very low, one leading consumer reported as having less than 100 tons in stock. For this reason, some quiet buying of Heavy Steel Scrap is going on, and this product is stronger in price than other grades of Scrap. The embargo placed on Scrap destined for the Allegheny Steel Company at Brackenridge, Pa., is still on, and as this concern is the heaviest consumer of Borings and Turnings in the Pittsburgh District, the embargo has naturally had the effect of very much weakening prices on these two items. It is believed that a better buying movement in Scrap will develop before long, but just now actual purchases are confined mostly to carload lots. We have reduced prices slightly on some grades of Scrap, and now quote, per gross ton, as follows: Heavy Steel Scrap, $16.50 to $16.60; Cast Iron Borings, $9.50, Bundled Sheet Scrap, $13.50; No. 1 Busheling Scrap, $14 to $14.25; No. 2, $9.75 to $10; Iron Axles, $22 to $22.25; Sheet Bar Crop Ends, $19.50 to $19.75; No. 1 Cast Scrap, $14.50 to $14.75; Steel Axles, $19; Rerolled Rails, $17.25 to $17.50, delivered Cambridge, Ohio, and $18 to $18.25, delivered Cumberland, Md. Low Phosphorus Melting Stock, point 0.04 and under, $18; Machine Shop Turnings, $18.50; Railroad Malleable, $14.75 to $15; Grate Bars, $12 to $12.25; Railroad Wrought Scrap, $16 to $16.25; Iron Rails, $18.25 to $18.50; Locomotive Tires, $16.75 to

$17, all above prices are f.o.b. Pittsburgh, unless otherwise noted.

Coke.—A determined effort is being made by the Independent Coke Producers' Association to maintain the price of standard makes of Furnace Coke at $1.75, at oven. It is evident that that output is heavier than the consumption, and this, with the recent ruling of the railroads that Coke on cars at scales would have to be moved, resulted in demoralization in prices of both Furnace and Foundry Coke loaded on cars. We quote best grades of Furnace Coke for prompt shipment at $1.75, at oven, but it is possible this might be shaded. Standard grades of Foundry Coke for prompt shipment have sold as low as $2, at oven. There is not much inquiry for Furnace Coke on contracts, but for first half of the year best makes of Furnace Coke are held at about $1.90 to $2, with a possibility that $1.85 could be done on some makes. Standard 72-hr. Foundry Coke on contracts is held at $2.25 to $2.50, several producers having large contracts on their books for shipments over the first half at $2.40, at oven. The output of Coke last week was about 250,000 tons.

Cincinnati.

CINCINNATI, OHIO, January 27, 1909.—(*By Telegraph.*)

Faith in the future is about the best that can be reported for this market at this time, for everything is undeniably quiet. Accentuating this sentiment of confidence are the inquiries of the speculative element which is again in the market for Pig Iron. The inquiries at tool manufacturing establishments are accumulating, and suggest business for some period of the year. In rolled products the run of business is only moderate, with little large business in sight. Scrap dealers are figuring on unloading some of their heavy stocks by April. Response from dealers in tools and general machinery specialties from other parts of the country is accepted by manufacturers as encouraging, and some good orders are under negotiation for the stock floors. Foundrymen, who are members of the Cincinnati section of Associated Foundry Foremen, will meet on February 6, to begin arrangements for the annual convention for the allied bodies here the week of May 17. Some important communications from Secretary Dr. Richard Moldenke will be considered and acted upon.

Pig Iron.—The speculative element, which has been in evidence in this market for a couple of weeks, is again in the limelight with inquiries for several thousand tons. One interest is offering to take 1000 tons at a price less than $13, Birmingham, for No. 2. It is understood that these speculators have been turned down on everything less than $13, and that all Southern furnaces are holding firm at that price for No. 2 for second quarter. A goodly portion of resale Iron has undoubtedly been sold during the week. Reports from local selling offices indicate that the price of $13, Birmingham, is now the maximum asked for second quarter and that the usual 50 cent range is eliminated in the case of the Northern product with practically all Southern furnaces, one or two still holding out for that price. High Silicons are still quotable on the basis of $18.50 for 8 per cent., with a 25 cent differential for each increasing half unit. There is no inquiry for Basic or Bessemer. There is but one inquiry for a lot of any size aside from the speculators mentioned, that of a local foundry which asks for prices on three grades of analysis Iron for delivery through the first half in 500-ton lots each. A scarcity of low grades is again noted and Forge Iron is firm at $11.75 to $12, Birmingham. But five days remain for the delivery of Pig Iron at the present rate of $1.10 from the Hanging Rock District and commensurate rates from other Ohio districts. On February 1 the rate will be $1.20 to Cincinnati territory and other points in proportion, the advance being from 5 to 15 cents per ton to all consuming points in the central territory. For the first quarter and half, based on rates of $1.10 from Hanging Rock and $3.25 from Birmingham, we quote f.o.b. Cincinnati as follows:

Southern Coke, No. 1	$16.75 to $17.25
Southern Coke, No. 2	16.25 to 16.75
Southern Coke, No. 3	15.75 to 16.25
Southern Coke, No. 4	15.25 to 15.75
Southern Coke, No. 1 Soft	16.75 to 17.25
Southern Coke, No. 2 Soft	16.25 to 16.75
Southern Coke, Gray Forge	14.75 to 15.25
Southern Mottled	14.50 to 15.00
Ohio Silvery, 8 per cent. Silicon	19.60 to 20.10
Lake Superior Coke, No. 1	17.10
Lake Superior Coke, No. 2	16.60
Lake Superior Coke, No. 3	16.10
Standard Southern Car. Wheel	22.25 to 23.25
Lake Superior Car Wheel	21.75 to 22.75

(*By Mail.*)

Coke.—There is little interest in this market in any kind of Coke, and, if anything, the spot market shows a further weakness. The best Furnace grades of Connellsville are obtainable for prompt shipment at $1.60, at oven; on contract about $1.75 to $2. Pocahontas grades are quotable at $1.85 to $1.90 for Furnace and $2.10 to $2.25 for Foundry. West Virginia grades run about the same, except that some brands of Furnace are obtainable as low as $1.75. The foundry melt does not seem to be increasing.

Finished Iron and Steel.—Nothing of any size or importance has developed during the week to stimulate a very sluggish condition, and no relief is anticipated for several weeks at least. Engineers and contractors are taking care of some reasonably good contracts carried over from the old year, but practically nothing has developed so far this year. There will be considerable Steel used in the large structure to be erected for the Ohio Mechanics' Institute, this city, for which the architects, Samuel Hannaford & Sons, will issue specifications about February 1. There will be a heavy tonnage of Twisted Steel Bars for the concrete work and for the auditorium, which will be of Steel frame, some heavy Steel columns, girders and trusses will be required. The mills in this territory are still making up stock in both Iron and Steel Bars, Sheets, &c., and report business light. Dealers' prices to the trade, f.o.b. Cincinnati, are as follows: Iron Bars, carload lots, 1.50c., base, with half extras; small lots from store, 1.85c., base, half extras; Steel Plates, carload lots, 1.75c., base, with half extras; small lots from store, 1.85c., base, half extras; Base Angles, carload lots, 1.85c., base; small lots from store, 2.10c.; Beams, Channels and Structural Angles, 1.85c., base; small lots from store, 2.10c.; Plates, ¼-in. and heavier, carload lots, 1.85c.; small lots from store, 2c.; Blue Annealed Sheets, heavy, No. 16, carload lots, 2.15c.; small lots from store, 2.50c.; No. 14, carload lots, 2.05c.; small lots from store, 2.40c.; No. 10 and heavier, carload lots, 1.95c.; small lots from store, 2.20c.; No. 12, carload lots, 2c.; small lots from store, 2.30c.; Sheets (Light), Black, No. 28, carload lots, 2.65c.; Galvanized Sheets, No. 28, carload lots, 3.70c.; Steel Tire, 4-in. and heavier, carload lots, 1.95c.; Plates, 3-16 and No. 8, carload lots, 2c.; small lots from store, 2.20c.

Old Material.—The scrap markets are still quiet, and a little further weakness in certain items is to be noted, with No. 1 Railroad Wrought a little stiffer. Dealers do not show any disposition to cut prices to stimulate trade, and seem content to wait. A variety of prices is quoted, but the following are about representative of the actual market, as nearly as it can be reflected under the conditions, f.o.b. Cincinnati:

No. 1 R. R. Wrought, net ton	$13.50 to $14.50
Cast Borings, net ton	6.50 to 7.50
Heavy Melting Steel Scrap, gross ton	14.00 to 15.00
Steel Turnings, net ton	7.50 to 8.50
No. 1 Cast Scrap, net ton	12.50 to 13.00
Burnt Cast, net ton	9.00 to 10.00
Old Iron Axles, net ton	18.00 to 19.00
Old Iron Rails, gross ton	15.00 to 16.00
Old Steel Rails, short, gross ton	14.00 to 15.00
Old Steel Rails, long, gross ton	14.00 to 15.00
Relaying Rails, 56 lb. and up, gross ton	21.50 to 22.50
Old Car Wheels, gross ton	15.50 to 16.50
Low Phosphorus Scrap, gross ton	14.00 to 15.00

Birmingham.

BIRMINGHAM, ALA., January 25, 1909.

Pig Iron.—There was very little trading during the past week, except where buyers could obtain the lower grades. A special feature of the market was the unusually large demand for Gray Forge Iron, and willingness of buyers, where they could obtain it, to pay some premium for this grade. The increased demand for the lower grades is brought about by the great activity in the Cast Iron Pipe market—different municipalities and other larger buyers having either placed their requirements, or are in the market; hence, the Pipe manufacturers are quite busy in their search for Iron. Sellers, however, are not disposed—if they should actually be possessed of a considerable tonnage of the lower grades—to put on their order books any large quantity of low grades; neither do they seem inclined to give the buyer the benefit of a reasonable anticipated output for any certain period. There seems to be a scramble for what low-grade Iron can be found on the market. One large manufacturer of Iron, who has been indisposed to concentrate sales in the least on low-grade Iron, reports that a leading Pipe plant in the district has successfully used some of the higher grades in its mixture, with uniform and satisfactory results, thereby enabling it to take a good percentage of higher grades along with the lower grades. The agitation of the tariff question also seems to lend considerable color to the tone of the market in general. The Charcoal Iron market seems to be in direct sympathy with the Coke Iron market, with $20 per ton at the furnace prevailing for the chilling grades, and some slight concession for the non-chilling grades. It is doubtful, however, whether any very large tonnage for delivery far into the year could be obtained on above basis. The prevailing price of Coke Iron is $13 for No. 2 Foundry at the furnace, and the market is firm on that basis.

Cast Iron Pipe.—This market continues very active, and the manufacturers seem to be flooded with inquiries. Western points, particularly, seem to be active in their solicitations for prices, &c., many coming from the small towns in Arizona, Oklahoma, Kansas, Texas and Arkansas. Several Southern towns have placed their requirements, and others are in the market, notably East Point, Ga.; Taycona, Fla.;

Portsmouth, and Suffolk, Va. Prices since last week have advanced $1 per ton, and manufacturers are not only asking it for their product, but making sales on that basis. As intimated last week, Kansas City opened proposals for 8000 tons, the lowest bidder being the Dimmick Pipe Company; and, as was anticipated, San Francisco is now in the market for something like 40,000 tons, while Salt Lake City is making inquiry for a large tonnage. The Soil Pipe market is firm, and inquiries received show a tendency on the part of jobbers to break the lull.

Old Material.—If there has been any demand for this material it seems to have been on the part of the dealers. Prevailing prices are as follows:

Old Iron Rails	$15.00 to $15.50
Old Iron Axles	16.00 to 17.00
Old Steel Axles	13.50 to 14.00
No. 1 Railroad Wrought	13.50 to 14.00
No. 2 Railroad Wrought	11.50 to 12.00
No. 1 Country Wrought	10.50 to 11.00
No. 2 Country Wrought	9.50 to 10.00
No. 1 Steel	10.50 to 11.00
No. 1 Machinery	11.00 to 11.50
Standard Car Wheels	13.50 to 14.00
Tram Car Wheels	12.00 to 12.50
Stove Plate and Light Cast	9.00 to 9.50
Cast Borings	5.50 to 6.50

Cleveland.

CLEVELAND, OHIO, January 26, 1909.

Iron Ore.—At the annual meeting of the Lake Carriers' Association, held in Detroit last week, the question of handling charges at Lake Erie ports was taken up and a move was made to secure a reduction in the present rate. A committee was appointed to take up the matter with the dock managers. The rate for unloading Ore at the Lake Erie ports for a number of years has been 20c. a ton. The dock managers have maintained that a reduction could not be made because of the difference in the handling plants. While it was admitted that some of the modern dock plants could unload Ore at a lower rate, it was claimed that others could not, and that it would not be satisfactory to have different rates for different docks. The dock managers at most of the receiving ports have contracts with their workmen which were made in 1907 and do not expire until next spring. They will use these wage contracts as a further argument against a reduction in the unloading rate. There are no inquiries for Ore and no indications of a buying movement soon. Little is being sent from the docks to the furnaces and there is no improvement in shipping orders. Prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50; Mesaba Bessemer, $4.25; Old Range Non-Bessemer, $3.70; Mesaba Non-Bessemer, $3.50.

Pig Iron.—The absence of a demand for Foundry Iron and the offering of some resale Iron have resulted in a further slight weakening of prices. While a few furnace interests that are pretty well sold up are still holding to $16 for No. 2 Foundry, others that have been asking that price appear willing to take orders at a lower figure, the market having settled down to about a $15.50 basis, Valley furnace. The only sales reported are three or four small lots, the largest being only 400 tons. Local furnaces have reduced their quotations about 25 cents a ton, now asking $16.50, delivered, Cleveland, for No. 2, and $15.75, at furnace, for outside shipments. The sale of one lot is reported at the latter figure, but the same quotation made on another lot did not bring the business. The outlook is not as encouraging as it was a few weeks ago owing to the fact that there are more requests to withhold shipments on contracts. In some cases shipments are being held up by stove manufacturers whose business has not been up to expectations owing to the mild weather this winter. Furnace C of the Buffalo Union Furnace Company will probably go out of blast this week. This furnace has been working badly recently and may be rebuilt. For the first quarter and first half we quote, delivered, Cleveland, as follows:

Bessemer	$17.40
Northern Foundry, No. 1	$16.90 to 17.25
Northern Foundry, No. 2	16.40 to 16.75
Northern Foundry, No. 3	15.90 to 16.40
Gray Forge	15.25 to 15.50
Southern Foundry, No. 2	17.35
Jackson County Silvery, 8 per cent. Silicon	20.05

Coke.—With inventories over, shipments of Foundry Coke are being taken a little better by consumers, and not quite as much spot Foundry Coke is being offered as in the early part of the month. We quote Standard Connellsville Furnace Coke at $1.60 to $1.65, at oven, for spot shipment, and $1.85 to $1.90 for the first half. Connellsville 72-hr. Foundry Coke is held at $2 to $2.25 for spot shipment, and $2.25 to $2.40 on contracts.

Finished Iron and Steel.—Specifications on contracts continue to come in fairly well from manufacturing plants, although some of the mills report a slight falling off, as compared with December. There have been some good orders during the week for Bands and for Nut and Rivet Steel. The demand for Sheets is holding up quite well, but orders for Plates are still light. An inquiry comes from a railroad for 6000 tons of Standard Section Rails, which will probably be placed this week. This is the first Rail purchase of any size in this territory for several months. The contract for the Structural Material for the Wick Building in Youngstown, about 1000 tons, has been awarded to the Cambria Steel Company. A slight improvement is noted in the demand for Iron Bars, largely for railroad repair work, and the two local mills expect that their output this month will be 75 per cent. of their full capacity. Prices on Iron Bars are being firmly maintained. Plate prices remain stationary, concessions of from $1 to $2 a ton being made only on the narrow sizes. Sheet prices are being more firmly maintained than Plates, but the same amount of shading is being done by some of the mills. Jobbers continue to report warehouse business light, with little, if any, improvement. We quote: Iron Bars, 1.50c., Cleveland, for car lots; Steel Bars, 1.50c., Cleveland, for car lots, half extras; Beams and Channels, 1.70c., base, Cleveland, and Plates, ¼-in. and heavier, 1.70c., Cleveland. We quote Sheets, mill shipments, car lots, Cleveland, as follows: Blue Annealed, No. 10, 1.90c.; Box Annealed, No. 28, 2.60c.; Galvanized, No. 28, 3.65c. Jobbers quote Iron Bars out of stock at 1.55c. to 1.60c., and Steel Bars at 1.60c. to 1.70c. Beams and Channels from warehouse are 2c., and Plates, ¼-in. and heavier, 1.90c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.10c.; Box Annealed, No. 28, 2.70c.; Galvanized, No. 28, 3.80c. Warehouse prices on Boiler Tubes, 2¾ to 5 in., are 65 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 71 per cent. discount.

Old Material.—Absence of a demand has resulted in the market showing a further weakening tendency. Dealers, as a rule, are holding firm, and are refusing to sell Scrap at present prices, except in the case of material on cars that must be moved. Local mills appear to have about enough Scrap on hand to supply immediate needs. No inquiries of any size are reported. Dealers are not hopeful of an early improvement. Dealers' prices to the trade, per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails	$16.00 to $16.50
Old Iron Rails	18.50 to 19.00
Steel Car Axles	20.00 to 20.50
Old Car Wheels	15.50 to 16.00
Heavy Melting Steel	15.00 to 15.25
Relaying Rails, 50 lb. and over	21.50 to 22.50
Agricultural Malleable	13.00 to 13.50
Railroad Malleable	14.50 to 15.00
Light Bundled Sheet Scrap	9.50 to 10.00

The following prices are per net ton, f.o.b. Cleveland:

Iron Car Axles	$19.50 to $20.00
Cast Borings	8.00 to 8.50
Iron and Steel Turnings and Drillings	9.00 to 9.50
Steel Axle Turnings	10.50 to 11.00
No. 1 Busheling	12.50 to 13.00
No. 1 Railroad Wrought	15.00 to 15.50
No. 1 Cast	13.50 to 14.00
Stove Plate	11.50 to 12.00
Bundled Tin Scrap	9.00

Buffalo.

BUFFALO, N. Y., January 27, 1909.

Pig Iron.—A slight gain is noted in the inquiry for Malleable. Specifications on contracts continue light, consumers apparently using up stock on hand and holding off on new placements, being covered for present requirements. Coke is going out faster than shipments of Pig Iron are being called for. Prices have not been tested by any inquiries for large lots. We quote as follows, f.o.b. Buffalo:

No. 1 X Foundry	$16.50 to $17.00
No. 2 X Foundry	16.00 to 16.50
No. 2 Plain	15.50 to 16.00
No. 3 Foundry	15.50 to 16.00
Gray Forge	15.50 to 15.75
Basic	16.00 to 16.50
Malleable Bessemer	17.00 to 17.50
Charcoal	20.75 to 21.25

Old Material.—The market is in a somewhat demoralized condition. Considerable stock has been forced for sale on account of being on cars, and owners compelled to sacrifice. Buyers have practically had their own way as regards fixing prices for this stock. For stock in yards, however, dealers do not make concessions; in fact, are not called upon to do so, as the demand is slight. The nominal schedule quoted below (per gross ton, f.o.b. Buffalo) would probably have to be shaded $1 per ton to effect sales:

Heavy Melting Steel Scrap	$15.00 to $15.50
Low Phosphorus Steel Scrap	21.00 to 21.50
No. 1 Railroad Wrought	16.25 to 16.75
No. 1 Railroad and Machinery Cast Scrap	15.00 to 15.50
Old Steel Axles	18.50 to 19.50
Old Iron Axles	22.00 to 22.75
Old Car Wheels	16.00 to 16.50
Railroad Malleable	14.00 to 14.50
Boiler Plate	12.50 to 13.00
Locomotive Grate Bars	12.00 to 12.50
Pipe	12.00 to 12.50
Wrought Iron and Soft Steel Turnings	10.00 to 10.50
Clean Cast Iron Borings	9.00 to 9.50
No. 1 Busheling Scrap	14.00 to 14.50

Finished Iron and Steel.—Specifications on contracts for Bars, Angles and Shapes are coming in more freely, one concern reporting more activity than at any time since the middle of December. In Structural Material there are indications that a good many small jobs requiring from 150 to

500 tons will come up for bids within the next 30 days. Specifications for the Steel required for the addition to the Funding & Development Company's plant at Niagara Falls will be in readiness for bids about March 1. Specifications for Bars for the Carborundum Company's new factory building, Niagara Falls, of reinforced concrete construction, will also be ready for bids March 1.

The offices of the Lash Steel Process Company and the Canadian Lash Steel Process Company, formerly in the White Building, Buffalo, have been removed to the New England Building, Cleveland.

New York.

NEW YORK, January 27, 1909.

Pig Iron.—One leading interest has made sales during the past week aggregating 18,000 to 20,000 tons, including several pretty good blocks. Otherwise, the markets are quiet, with an easier tendency. Statistically, the eastern Pennsylvania Pig Iron industry is in a sound condition. We quote $17.25 to $17.50 for No. 1 Foundry, $16.75 to $17.25 for No. 2 Foundry, and $16.25 to $16.50 for No. 2 Plain, at tidewater. Alabama Irons are quoted $17.25 to $17.50 for No. 1 Foundry, and $17 to $17.25 for No. 2 Foundry.

Steel Rails.—The New Haven Railroad has let a contract for the rerolling of 8000 tons of 100-lb. Rails to the McKenna Process Company, and the latter company's mill at Tremley Point, N. J., will be started up in the near future. It is figured that at least $5 a ton can be saved to the railroad over the return from selling its worn Rails as Old Material. The rerolling proposition is receiving more attention of late, and it is estimated that a large tonnage may become available for such treatment from Eastern railroads. The waste in reheating and cropping, after the elongation resulting from three passes, gives, from a 100-lb. Rail, a 33-ft. Rail, weighing about 91 lb. In the past week the orders for new Rails have been very light. The New York Central order is expected to be announced any day, and the total will be around 80,000 tons.

Structural Material.—Actual contracting for new construction continues at a very moderate rate. January is never a large month, and this year's total for the first month promises to run from 40,000 to 45,000 tons, of which about one-half goes to the American Bridge Company. It is estimated that bids are out on about 90,000 tons of fabricated Steel work, and that inquiries have been received representing a total of 100,000 tons more. Probably 110,000 tons of all this may be counted on as likely to be put through in the reasonably near future. Among railroad projects, of which there are few, is one for track elevation work at Philadelphia by the Pennsylvania Railroad, calling for 10,000 tons of Steel. In the past week the railroad buying has been of the meagerest sort—75 tons for the Lehigh, 45 tons for the Boston & Maine and 150 tons for the Wheeling & Lake Erie. At Cleveland, Ohio, the Brotherhood of Locomotive Engineers' Building, requiring 2000 tons, will be bid on in the next two weeks. Other contracts pending include 1000 tons for a tobacco warehouse at Baltimore, 1100 tons for the John Hancock Life Insurance Company, Boston; 600 tons for the Government Penitentiary at Leavenworth, Kan.; 650 tons for a wool storehouse at Charleston, Mass.; 1200 tons for the Union League Building addition at Philadelphia, 500 tons of Plate Girders for the Soo Line's track elevation at St. Paul. The Geo. A. Fuller Company will build the Suffolk County Court House at Boston, which will require 700 tons of Steel. Among contracts let are 450 tons for a highway bridge at Augusta, Ga., to the Roanoke Bridge Company, and several hundred tons for a cold storage plant at Syracuse, N. Y., taken by the Jones & Laughlin Steel Company. Reports of the cutting of prices are more circumstantial. We continue to quote at tidewater on shipments from mill, as follows: Beams, Channels, Angles and Zees, 1.76c.; Tees, 1.81c. On Beams, 18 to 24 in., and Angles, over 6 in., the extra is 0.10c. Structural Material, cut to lengths, is sold in small lots at 2¼c.

Ferroalloys.—The market continues very quiet, and prices are unchanged at $44, Baltimore, for Ferromanganese, and $65 to $67, Pittsburgh, for 50 per cent. Ferrosilicon. These latter prices may be shaded considerably by anxious sellers.

Bars.—The Iron Bar mills are competing rather sharply for the moderate amount of business now coming up. This is especially noticeable in the trade in Common Bars. Manufacturers of Best Refined Iron Bars are maintaining prices rather firmly on account of high cost. Prices on Iron Bars of common quality range from 1.45c. to 1.50c., and on Refined Iron Bars from 1.56c. to 1.60c., tidewater. Some of the Eastern mills are not adhering closely to the regular price of Steel Bars of 1.56c., tidewater; in fact, they have been capturing some little trade in the West. It is also stated that Steel Bars are making some inroads on car business, which has hitherto been closely confined to Iron Bars.

Plates.—The local demand is light, being closely restricted to small lots. Prices on Standard Sized Plates are unchanged, as follows, at tidewater: Sheared Plates, 1.76c. to 1.86c.; Flange Plates, 1.86c. to 1.96c.; Marine Plates, 2.16c. to 2.26c.; Firebox Plates, 2.65c. to 3.50c., according to specifications.

Cast Iron Pipe.—Business is stagnant. Even inquiries are decidedly few. Carload lots of 6 in. are nominally quoted at $24 per net ton, tidewater, for early delivery.

Old Material.—Recent purchases appear to have fully satisfied the requirements of large consumers, and they are not only out of the market, but in some cases are asking shipments to be deferred, causing the sellers to look elsewhere for the disposition of their unplaced stock, which naturally results in weakening the market. Practically everything in the line of Scrap is lower. While dealers are hopeful of an ultimate improvement in the demand, they fear that this may not come until some time in March. Quotations are as follows, New York and vicinity, per gross ton:

Old Girder and T-Rails for melting	$14.00 to $14.50
Heavy Melting Steel Scrap	14.00 to 14.50
Old Steel Rails, rerolling lengths	15.00 to 15.50
Relaying Rails	21.50 to 22.00
Old Iron Rails	18.00 to 18.50
Standard Hammered Iron Car Axles	19.50 to 20.00
Old Steel Car Axles	17.50 to 18.00
No. 1 Railroad Wrought	16.00 to 16.50
Iron Track Scrap	14.50 to 15.00
No. 1 Yard Wrought, long	15.00 to 15.50
No. 1 Yard Wrought, short	14.00 to 14.50
Light Iron	10.00 to 10.50
Cast Borings	9.50 to 10.00
Wrought Turnings	10.00 to 10.50
Wrought Pipe	12.00 to 12.50
Old Car Wheels	14.50 to 15.00
No. 1 Heavy Cast, broken up	14.00 to 14.50
Stove Plate	12.00 to 12.50
Locomotive Grate Bars	12.00 to 12.50
Malleable Cast	13.00 to 13.50

Metal Market.

NEW YORK, January 27, 1909.

Pig Tin.—Conditions continue just as unsatisfactory as noted in these reports for several weeks. It is unusual that the Tin market did not advance previous to the Banca sale. Some well versed in the Tin market consider that this is the sign that the market may ease off now that the Banca sale is out of the way. This sale occurred this morning in Amsterdam, and went at 28c., c.i.f. New York. Prices have gradually sagged during the week, the fluctuations being as follows:

	Cents.
January 20	28.10
January 21	27.90
January 22	27.87½
January 25	28.85
January 26	27.80
January 27	27.75

The stocks in this country are large, it being estimated that the leading consuming interest has nearly 1000 tons of Tin warehoused in and around this city. The arrivals so far this month have been 3842 tons, and there are afloat for American ports 2090 tons. The London market is again lower this week, closing to-day at £125 15s. for spot and £127 10s. for futures.

Copper.—The market continues unusually dull, and there is not enough buying even to make a fair basis for quotations. Electrolytic Copper has been sold for domestic consumption at 13.75c., net cash, New York, and Lake Copper at 14.25c. It is probable that these prices would be shaded at least ⅛c. for desirable orders. The United Metals Selling Company continues to quote prices unchanged, at 14.50c., delivery 30 days. Business in Europe is exceedingly small, and prices there have gradually sagged. The London market closes to-day at £59 5s. for spot and £60 2s. 6d. for futures. This is a reduction of about £1 2s. 6d. since last week. Exports so far this month, while reassuring, are not phenomenal, amounting so far to 18,069 tons.

Pig Lead.—The price of the leading interest is unchanged, at 4.20c., for shipment Lead in 50-ton lots. Outside sellers have shaded their quotations to 4.17½c., New York, and 4.02½c., St. Louis, in the hope of getting business.

Old Metals.—Business is very dull, and in large quantities there is nothing doing. Dealers' selling prices are as follows:

	Cents.
Copper, Heavy Cut and Crucible	13.25 to 13.50
Copper, Heavy and Wire	13.00 to 13.25
Copper, Light and Bottoms	11.50 to 11.75
Brass, Heavy	9.25 to 9.50
Brass, Light	7.50 to 8.00
Heavy Machine Composition	12.25 to 12.50
Clean Brass Turnings	8.50 to 9.00
Composition Turnings	10.00 to 10.50
Lead, Heavy	3.85 to 3.95
Lead, Tea	3.60 to 3.70
Zinc Scrap	3.75

Spelter.—Prices are unchanged at 4.95c., St. Louis, and 5.10c. to 5.15c., New York. The market is very uneven, and a case is reported where 1000 lb. was sold at 5.20c., ex-store. The large amount of Spelter in cars on the Jersey flats is having a bad effect on the market.

Antimony.—Prices are unchanged at 8c. to 8.12½c. for

Hallett's, 8.25c. to 8.37½c. for Cookson's and 7.87½c. for outside brands.

Aluminum.—The market is dull and prices are unchanged at 24c. for No. 1 Ingots, 32c. for Rods and Wire and 34c. for Sheets.

Tin Plate.—Prices are stationary at $3.70, Pittsburgh, and $3.89, New York, for 100-lb. IC Coke Plates.

Iron and Industrial Stocks.

NEW YORK, January 27, 1909.

Considerable strength was manifested by the industrial stocks the past week under the lead of United States Steel. This was ascribed to rumors from Washington that the tariff revision would not be drastic. On the strength of this report Steel preferred sold up to 115 on Friday, which is the highest price ever reached. The previous highest price was 114⅝, attained November 4, last. Previous to that its record price was 113¼, made in 1906. The common stock sold up to 55⅛ on the same day, but did not make a new record. Subsequently, the industrial stocks sold off in sympathy with the rest of the list. The range of prices on active iron and industrial stocks from Thursday of last week to Monday of this week was as follows:

Allis-Chalm., com..	14½- 15⅛	Railway Spr., com.	47 - 48
Allis-Chalm., pref..	46⅜- 48⅞	Railway Spr., pref.	100½-100¾
Beth. Steel, com...	24¾- 26¼	Republic, com.....	25½- 26⅝
Beth. Steel, pref...	52 - 53	Republic, pref.....	86¼- 88¼
Can, com.....	8⅛- 8½	Sloss, com.....	77½- 79½
Can, pref.....	73 - 73½	Pipe, com.....	29 - 29½
Car & Fdry, com..	48⅝- 50⅛	Pipe, pref.....	75 - 76
Car & Fdry, pref..	108½-109⅞	Steel, com.....	52⅝- 55⅛
Steel Foundries.....	38	Steel, pref.....	113¾-115
Colorado Fuel.....	40⅝- 42⅞	West. Electric.....	82 - 84½
General Electric...	155½-157¾	Chi. Pneu. Tool...	27 - 27¼
Gr. N. ore cert....	71 - 72⅞	Am. Ship, pref.....	104½
Int. Harv., com...	63¼- 64	Cambria Steel.....	39 - 39½
Int. Harv., pref...	109⅝-110	L. S. Corp.....	15 - 15½
Locomotive, com...	56 - 58	Penna. St., pref...	103⅞-104
Locomotive, pref.....	112	Warw. I. & S. Co..	8 - 8 1/16
Nat. En. & St.,com.	13¾- 15⅛	Cruc. St., com.....	7½- 8⅛
Nat. En. & St.,pref.....	85	Cruc. St., pref....	56¾- 64
Pressed St., com...	41⅞- 43¼	Harb.-Walker Ref.....	82
Pressed St., pref..	102¼-102⅝		

Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 54, preferred, 114¼, bonds 103⅞; Car & Foundry common 49⅝, preferred 110; Locomotive common 57⅜, preferred 112; Colorado Fuel 41⅝; Pressed Steel common 43, preferred 102¼; Railway Spring common 47½; Republic common 25⅞, preferred 86⅞; Sloss-Sheffield common 78; Cast Iron Pipe common 29, preferred 76; Can common 8½, preferred 73.

Dividends.—The United States Steel Corporation has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable March 1, and ½ per cent. on the common stock, payable March 30.

The Cambria Steel Company has declared a quarterly dividend of 1½ per cent., payable February 1.

The Wheeling Steel & Iron Company has declared a quarterly dividend of 2 per cent.

The Flannery Bolt Company, Pittsburgh, has declared a quarterly dividend of 5 per cent., payable January 30.

The Harbison-Walker Refractories Company, Pittsburgh, has declared a quarterly dividend of 1½ per cent. on the preferred stock.

Trade Publications.

Iron and Steel and Machinery.—Joseph T. Ryerson & Son, Chicago, Ill. Catalogue, 11 x 8½ in., 46 pages. Chiefly devoted to describing the company's plant, which is referred to as an "iron and steel department store." The frontispiece is an excellent engraving showing a bird's-eye view of the plant and a description of its growth follows. The plant covers an area of 750,000 sq. ft. and has capacity for storing 150,000 tons of iron and steel, which is kept in stock in all shapes and sizes and for every purpose of manufacture. Boiler tubes and rivets are also kept in stock, and some space is devoted to describing part of the company's line of general machinery, such as heavy hydraulic presses, angles, shears, hydraulic flanging machines, hydraulic riveting machinery, rotary splitting shears, air compressors, &c., many of which are illustrated. A two-page view of the interior of one of the company's immense structural warehouses occupies the center of the book and is particularly interesting. Other views show the interior of the stores, offices, dining room, writing room and library maintained by the firm.

Valves.—Hancock Inspirator Company, 85 Liberty street, New York. Catalogue, 6 x 9 in., 39 pages. The Hancock bronze globe, angle, 60-degree and cross valves and steel and iron body valves are illustrated, with exterior and sectional views and features of their construction are described. They are regularly made in sizes up to 3 in. The Hancock check valves are also shown and prices of standard sizes are listed.

Brass and Iron Specialties.—Standard Brass & Iron Works, Milwaukee, Wis. Catalogue, 6¼ x 9¼ in., 16 pages. Deals with brass and iron specialties, brewers', tanners' and plumbers' supplies. A number of special fittings, such as Siamese connections for brewers' hose, hose couplings, hose cocks, brass three-way cocks, air cocks, &c., are shown, in addition to tapping tubes, bungs, faucets, &c. The company also does general machine work for the trade and makes bronze and aluminum castings.

Portable Ovens.—E. E. Steiner, 58 Union street, Newark, N. J. Catalogue, 7 x 10 in. Several types of ovens for japanning metal and wood, enameling, core drying and lacquer baking are illustrated. These ovens are designed for the use of gas as fuel and the advantages claimed over coal fuel is that a uniform heat can be maintained and can be easily adjusted. The company also makes ovens to order for special purposes. Several types of radiators applicable to the ovens are shown, and the Reichheim positive pressure blower is illustrated. A number of testimonials complete the book.

Rubber Belt Conveying Machinery.—Jeffrey Mfg. Company, Columbus, Ohio. Catalogue 67D, 6 x 9 in., 48 pages. A number of interesting views of the Jeffrey rubber belt are shown here, including illustrations of the belt in use handling ore in South Africa, as coke conveyors in steel mills, conveyors for mill tailings and refuse from cyanide tanks and many other purposes. Sectional views of the apparatus are shown and prices are listed.

Presses.—Ferracute Machine Company, Bridgeton, N. J. Temporary Catalogue 16, 4½ x 6 in.; 66 pages. Supersedes all of the company's previous catalogues, and illustrates and gives prices and brief descriptions of the company's presses of all kinds. These include inclinable cutting, armature notching, drawing and redrawing, embossing, coining, all kinds of punching and cutting and light and heavy stamping presses, as well as drop hammers and foot, hand and gravity presses. All types are illustrated, and tables of dimensions and prices are given.

Leather Belting and Belt Dressings.—Charles A. Schieren Company, New York. Circular and blotter. The circular illustrates a practical demonstration of the water proof qualities of the Duxbak belting, a belt being shown running under a series of continuous streams of water from a pipe above. The blotter describes Flyfoot belt dressings, a new product of the Schieren Company, which it is claimed improves the driving qualities of the belt.

Steel Parts for Crusher Plants.—Taylor Iron & Steel Company, High Bridge, N. J. Catalogue, 6½ x 9½ in.; 48 pages. Devoted to the company's Tisco manganese steel products. A short preface describes the company's plant at High Bridge, N. J., which is one of the oldest iron plants in America. Jaw Crusher parts are illustrated and described, and there follow illustrations and descriptions of gears and pinions in a number of types, sprocket wheels and other steel wheels. An interesting illustration is that of a mine car wheel which was subjected while cold to successive blows from a heavy drop hammer. The wheel is badly distorted but not broken, indicating the toughness of the steel, which can be machined only by grinding. Screen plates for separating and sizing broken stones are illustrated and briefly described, and a price-list of standard sprocket wheels is included.

Horizontal Tubular and Locomotive Boilers.—Oil Well Supply Company, Pittsburgh, Pa.; W. B. Wilkinson, 26 Cortlandt street, New York, sales agent. Circulars. One treats of fire tube boilers, portable, horizontal and vertical, which are made in many styles. The standard type is described and prices are given. The company's line of locomotive type portable boilers is shown in the other circular and briefly described.

Concrete Sewer Centers.—Blaw Collapsible Steel Centering Company, Westinghouse Building, Pittsburgh, Pa. Bulletin No. 37. Views of steel centers for sewer construction which are made by the company in half-round sections in all sizes are shown, together with diagrams illustrating the method of covering the steel centers with concrete. Most of the views illustrate installations of the Indianapolis sewerage system.

Fan Motors, Motor Generator Sets, Arc Rectifiers, &c.—General Electric Company, Schenectady, N. Y. Bulletins and circulars. Bulletin No. 4620, superseding No. 4556, describes series luminous arc rectifier systems for street illumination, with illustrations of the company's inclosed arc lamps. No. 4628 supersedes No. 4530 and shows mercury arc rectifiers for converting alternating current to direct current from capacities up to and including 40 amperes. No. 4631, superseding No. 4359B, deals with the series alternating inclosed arc light system. No. 4632, superseding No. 4560, is issued in catalogue form and describes fan motors and small power motors, including desk fans and larger ceiling fans for restaurants, hotels, &c. No. 4633, also in catalogue form, supersedes No. 9136 and is devoted to motor generator sets, describing the general line with numerous views of installations. The mercury arc rectifier for charging telephone batteries, G. E. snap switches and tungsten lamps are referred to in the circulars.

The Machinery Trade.

NEW YORK, January 27, 1909.

The demand for machinery the past week was as light as it has been any week since the first of the year, and what sales there were covered only a tool or two each with few exceptions. Inquiries in some quarters were a little better, but orders were scarce and with some houses the actual transactions were less numerous than they were the previous week. Reports from industries which use mechanical equipment are not encouraging, and it is thought that general business will have to improve considerably before there will be a sufficient demand to overcome the dullness that prevails in the machinery trade. While the railroads and other large corporations are showing but little activity it is hoped that the machine tool list sent out by the Norfolk & Southern Railroad will be followed shortly by the other roads which require mechanical equipment. This inquiry covers about 20 tools, and is being figured on by a large proportion of the dealers and manufacturers.

The Oneida Steel Pully Company, Oneida, N. Y., has issued a revised price-list of its wood split pulleys.

The annual convention of the National Metal Trades Association will be held on Wednesday and Thursday, April 14 and 15, at the Hotel Astor, New York.

Norfolk and Southern Railroad's Machinery List.

Machinery houses are sending in bids on the list of tools issued by the Norfolk & Southern Railroad, which are, it is understood, to be purchased for the shops at Berkley, Va. The list covers about 20 machine tools, including two 79-in. driving wheel lathes, one 16 in. x 8 ft. engine lathe, one 32 in. x 14 ft. engine lathe, two 26-in. stroke traveling head shapers, one 26 x 26 in. by 14 ft. bed planer, one 42-in. stroke open side steam hammer, two 300 cu. ft. air compressors, one set bending rolls, 10 ft. wide, to roll to ¾-in. boiler plant; two flue welding machines, one vertical hollow chisel mortising and boring machine, ⅜ to 2 in.; one hand planer and jointer, one two-spindle shaper, one small hollow chisel mortiser, ¼ to ¾ in.; two rip saws, capacity 14 in. The receivers of the road are spending a great deal of money to improve the system, and early in the month were authorized by the court to issue $1,000,000 worth of receiver's certificates, the proceeds from the sale of which are to be used for making the improvements. Of this amount, it is understood, that $65,000 will be used for additional equipment, &c., for the machine shops.

The E. W. Bliss Company, Brooklyn, N. Y., contemplates enlarging its plant for the manufacture of torpedoes. The sizes of the new buildings to be erected have not yet been determined, but it will not be surprising to hear of the company's intention to build additions of a magnitude that will necessitate the purchase of a great deal of mechanical equipment.

The Syracuse Safe Company, Mark Aaron, general manager, Syracuse, N. Y., has purchased property, and will have plans prepared for a building, 150 x 300 ft., of brick and steel, for the manufacture of safes. Electric power will be used and current purchased of the local power company. Orders for the machinery will not be placed until after construction work on building is under way. The machinery to be purchased has not been definitely determined, but will include one large size cupola for foundry, three 8-ton hand power traveling cranes, lathes, drill presses, stamping machinery, belting, shafting, pulleys, hangers, several motors and woodworking machinery for pattern shop.

The Rockwell Furnace Company, New York, has been awarded the contract covering the complete furnace equipment for the new locomotive shops of the Delaware, Lackawanna & Western Railroad, at Scranton, Pa. The furnace equipment consists of 35 of the latest type furnaces, operated with 300-B.t.u. water gas, which is made in Loomis-Pettibone producers. These shops will be capable of turning out complete locomotives, and are to be in operation in three months. No expense has been spared to make them up to date, as they embody the latest and most improved machinery and equipment selected after thoroughly inspecting a large number of modern railroad and industrial plants throughout the country.

The expansion of automobile plants and the erection of garages have been of considerable importance in the machinery trade, and the demand for automobiles seems to be growing sufficiently to induce other companies to erect new plants. It is reported that the Fiat Automobile Company, Turin, Italy, desires to secure a site in this country for the establishment of a plant to manufacture its cars. It is thought that if the tariff on foreign cars is not reduced other foreign makers may follow the lead of the Fiat Company and establish works in this country.

The Vandyck-Churchill Company, 91 Liberty street, New York, has been awarded the contract for furnishing all the machine tools for the Five Points Portland Cement Company's plant at Provo, Utah. The list includes planers, lathes, shapers, drills, keyseaters, &c.

Considerable business has been placed in this market of late by the Imperial Government of Japan for electrical equipment, to be used in converting steam railroads to electric power. The government is spending about $700,000 just now for this class of equipment, and orders have recently been placed with the General Electric Company for some large turbines, and Takata & Co., the Japanese export firm, have been given a large contract for a water power plant. A German firm has received orders for electric motors and other electrical equipment. The government is now receiving bids on electric locomotives and other rolling stock, and orders for this material will be placed shortly, it is understood. The line to be electrified serves Tokio and seven large manufacturing cities in the vicinity. This, it is understood, is only the beginning of a buying movement which will last over a long period, as the Imperial Government has decided to electrify all of the lines serving the more important cities of the country. One or two lines have already been electrified, and it is said in machinery circles among those interested in the Japanese business, that the government will proceed to electrify its systems as fast as the money can be raised.

Proposals were issued the past week for the equipment to be installed in the six-story, 120 x 300 ft., cold storage and light manufacturing building to be erected at the corner of West Fayette and West streets, Syracuse, N. Y., by the Central City Refrigerating Company. The bids on the steel work, consisting of 1200 tons, have been received, but the contract has not yet been placed. Bids on the following equipment will be received at the company's office, Kirk Building, by Consulting Engineer R. S. M. Mitchell: Four gas producer units, each of 250 hp. capacity, total 1000 hp.; two 500-hp. gas engines, for direct connection to generators; two 300-kw. generators, direct connected type; two 200-ton direct motor driven vertical single acting refrigerating machines; one circular or spiral conveyor; large amount of cork insulation; seven freight and one passenger electric elevators, and motor driven ventilating apparatus.

The Secretary-Treasurer of Lethbridge, Alberta, Canada, will receive bids until March 1 for boilers and accessories, economizers, feed pumps, mechanical draft, pipe work and valves, steam turbine generator, steam engine generator, reconstruction of steam engines, condensing sets, crane, motor generator and transformers, switchboards, steel work, &c., for the municipal power plant. Plans and specifications may be seen at the office of Smith, Kerry & Chace, Toronto, Ont., and the Carnegie Public Library Building, Winnipeg.

Bids recently submitted for barge canal contract No. 20, involving an expenditure of about $4,000,000, have been rejected, and modified plans and specifications for this contract will probably be prepared and bids asked for at an early date. The contract covers 58 miles of dredging in the Mohawk River, and the lowest bid received was more than 17 per cent. in excess of the State engineer's estimate of $4,173,900.

The Board of Water Supply, Gas and Electricity, New York, has for the third time rejected all bids for the construction of the tunnel under the Walkill Creek, which is to form a part of the Catskill aqueduct. It is probable that the board will again advertise for bids on the work.

Business Changes.

Edward H. Barnes, Atlanta, Ga., Southern sales agent for the Bass Foundry & Machine Company of Fort Wayne, Ind., has moved his office from the Equitable Building to 524-525 Chandler Building.

Cincinnati Machinery Market.

CINCINNATI, OHIO, January 26, 1909.

With the exception that inquiries are increasing and some fairly good business is in sight, the week has been uneventful and much like its predecessors of the new year. This refers particularly to the tool manufacturing establishments. In the line of heavy punching and shearing machinery and metal working machinery in general business has steadily increased with the larger concerns, and a few of these are enjoying a substantial run of business. Boilers and engines are not doing so well, although the line of throttling engines and boilers designed especially for installation in the Southern sugar, molasses and phosphate industries and the like is making excellent headway. One large manufacturer of this last named line announces that, taking the 14 months into consideration since the beginning of the depression, the last five months have netted his concern 50 per cent. more returns than the preceding nine. The South has shown a steadily increasing strength, and tool and other concerns having an entree into this territory have felt the effects of the depression less than those securing the greater part of their business from other directions and from abroad.

As a rule the tool manufacturers in this field are not

looking for any special run of business before the turn of the half year, and some feel that there may not be anything of note until the tariff question is settled definitely. An especially optimistic opinion at this time comes from one of the largest manufacturers of lathes in this territory, who says that January will be recorded as the best month since May, 1907. Planer manufacturers are also having some business.

The awards of business on bids submitted to the Union Pacific Railroad and the McKeen Motor Works Company are anxiously awaited by a number of tool manufacturers here. Manufacturers of small tools and devices, except the electrically driven ones, report business but fair and do not look for much or any improvement until after March 1.

Tool and machinery manufacturers generally in this field who are members of the Industrial Bureau of Cincinnati found considerable pleasure in the report of Secretary Finch at the annual dinner at the Business Men's Club on Saturday night, which dealt largely in statistics of machinery and manufacturing and their local increase in output and number during the year 1908. The industries brought to the city during that year increase the sum paid out annually for labor about $500,000 and add to the number of substantial manufacturing plants, some of them being entirely new. Among these were the Ohio Bevel Gear Company, Phillemac Rolling Mill Company, United States Can Company, Postal Auto & Engine Company, reorganized here under the name of the Buggycar Company; Central Mfg. Company, Southern Iron & Steel Company, Geneva Optical Company and others. Some interesting addresses were made at the dinner by men of note, among these President T. C. Powell of the Cincinnati Southern Railroad, H. A. Treudley of the Baltimore & Ohio Southwestern Railroad, E. W. Lewis of the new Merchants Ice Cold Storage Company, Vice-Mayor John Galvin, William Lodge of the Lodge & Shipley Machine Tool Company and others.

The perspective for the new Ohio Mechanics' Institute Building has been finished and accepted. Tenants in the buildings at the northeast corner of Walnut and Canal streets, which are to be razed to accommodate the new structure, have been notified to vacate by April 1. This building will have a special interest for local tool and machinery manufacturers, not only because it will give an impetus to the already popular cause of co-operative education which had its origin in Cincinnati and at the university, but because in it will be housed advanced types of tools, engines and other machinery of local manufacturers as a part of the institution and working displays on view in a large section to be allotted manufacturers for such purpose. The architects are Samuel Hannaford's Sons. In shape the building will be a hollow rectangle and will be divided into four wings, each being designated by a point of the compass. It will have a frontage of 232 ft. on Walnut street. Superintendent Shearer of the institute already has on file offers of tools from the most representative manufacturers here, and the equipment for the students will be furnished entirely by local manufacturers.

A new company which will add largely to the Cincinnati output of iron fencing specialties is the American Fence & Iron Works Company, recently organized under the laws of Kentucky, with a capital stock of $20,000. The incorporators and active directors are Frank L. Branson, president; J. R. Stevens, vice-president and secretary, and D. B. Stevens, treasurer. The two-story building at 510-512 Carr street has been leased of the Cincinnati Iron & Steel Company, and machinery has been purchased and is being installed. The president, F. L. Branson, was formerly a sales manager for the Stewart Iron Works Company and later was vice-president of the Cincinnati Iron Fence Company, which he left about a year ago. The two other officers compose the general contracting firm of the J. R. Stevens Company of this city. It is intended to begin operations about March 1.

The foundry melt is not increasing, the average being about three heats per week and from one-half to a third force. Some larger and more expensive castings, however, are noted. The situation in the steel casting line is promising. The recently organized company to manufacture crucible steel castings is getting things in shape and it is said has received assurances of some excellent business from tool manufacturers.

J. E. Bicknell has been appointed receiver of the Findlay Axe & Tool Company, Findlay, Ohio. The resources are given as about $175,000 and liabilities about $50,000, one-half of which are in bonds not due.

The annual election of officers of the Globe Iron Works, Dayton, Ohio, resulted as follows: R. R. Hickey, president; C. P. Folsom, vice-president; C. E. Mentel, secretary, and W. Huber, superintendent.

The Buckeye Boiler Company, Ironton, Ohio, reports some good advance orders and a fair run of business the past months of depression. The election of officers resulted as follows: President, Joseph C. Beckley; vice-president, Frank J. Snyder, Jr.; secretary and treasurer, George E. Lane, and directors, George E. Goldshatt and William S. Goldshatt.

Dayton, Ohio, capitalists are making an effort to secure the location there of the National Cutlery Company of Philadelphia.

It is announced that the abandoned plant of the International Can Company near Toledo, Ohio, is to be refitted and new boilers, engines and machinery installed by the J. Weller Company and others for the establishment of a canning factory.

Chicago Machinery Market.

CHICAGO, ILL., January 26, 1909.

Despite the fact that the general situation in the machinery market has not been materially changed by any recent developments, it is nevertheless true that there is a more cheerful tone in the views expressed this week by dealers and manufacturers touching the prospects for a gradual forward movement in trade. This is doubtless due in a large measure to a better run of inquiries of a promising nature received in the past few days as well as some increase in actual sales reported by the leading houses. An order comprising machine tool equipment for a new gas engine plant, amounting to about $5000, has been closed by a prominent selling agency, which also booked an order from a builder of electrical machinery for a 100-in. boring mill. The same interest has inquiries for a 6-ft. full universal radial drill, double head bolt cutter, large double crank press and a heavy cut-off saw. Such inquiries indicate that the larger shops are beginning to take account of their needs, which for a year or more have received but scant attention. It is still true, however, that the bulk of the business is furnished by the smaller industries, the most active of which are the builders of agricultural machinery, automobile appliances and gas engines. Reports from the machine tool salesmen covering territory in Michigan, Wisconsin, Indiana, Illinois and Iowa are particularly encouraging. Besides a fair amount of business now being figured on, they include reference to plans of quite a number of manufacturing plants, which contemplate purchases of machinery a little later on.

Attention was called some time ago in these columns to the large number of automobile garages that are being established throughout the country, and it was then suggested that this industry would soon become one of great importance to the machine tool trade. In discussing this rapidly growing adjunct of the automobile business, a well informed machinery dealer stated that as an avenue for the sale of machine tools it had already became an important factor, and at the present rate of development it was bound eventually to yield a volume of business larger in the aggregate even than that supplied by the factories engaged wholly in new construction work. New projects of this kind, both large and small, he stated, were being carefully followed up, and in a great majority of cases it was found that a few small tools at least were required for the repair departments, which are generally run in connection with the garage.

The business of Charles H. Besly & Co., Chicago and Beloit, Wis., which was controlled by Charles H. Besly, recently deceased, will be conducted as heretofore under the direction of Edward P. Welles, who has been associated with the company for the past 22 years, and of which he has been general manager since 1896.

The Humane Horse Collar Company, Omaha, Neb., manufacturer of steel and leather horse collars, is moving its plant to Chicago Heights, at which place it is erecting two buildings of brick construction, one 45 x 210 ft., two stories, which will include the boiler and engine house attachment, and another, 80 x 120 ft. The contract for the boiler has been awarded, but the company is in the market for other necessary machinery equipment. F. E. Deny, manager, is now at Chicago Heights.

Generally speaking, the contract boiler shops are not much in evidence in the tool market. Several fairly good orders, however, have been received since the first of the year from structural shops for tools required in fabricating work. Among the orders for such equipment recently received by Joseph T. Ryerson & Son is one from the Union Iron Works, San Francisco, Cal., for a high speed friction saw of especially heavy construction for cutting 30-in. beams of the new Bethlehem sections. Included in the late export orders taken by this concern are Lennox bevel shears for shipment to Canada and to Rotterdam, Holland.

The Russellville Water & Light Company, with offices at Pine Bluff, Ark., recently incorporated with a capital stock of $100,000, has acquired the franchise, privileges and property of the Russellville & Ozark Mountain Light & Transit Company, which was organized in June, 1907, to build a light and water plant in Russellville, and an interurban road from Russellville to Dover. The contract has been let for the construction of a dam across the Illinois River, which when completed will be 400 ft. wide, with a 25-ft. head of water. Power will be generated by four turbine wheels, which will develop an excess of 500 hp. It is estimated that $50,000 will be required for the construction of the dam, race, powerhouse and reservoir. A light plant was in-

stalled by the original company about one year ago, but when the new power is ready additional equipment will be required, which will include one 150 kw. generator, to be used in conjunction with a 100 kw. machine now in service. The company also wishes to purchase silent link belts for both generators, and solicits information from manufacturers of such goods. During the coming spring and summer, contracts will be let for the equipment of a water works system, and it is expected that plans and specifications for this work will immediately follow the completion of the dam and power plant.

The Fowler Utilities Company, Fowler, Ind., is planning improvements which will necessitate the purchase of a 60 cycle, 1150 and 2300 volt, 75-kw. direct connected generator. R. J. Chapman is manager.

The Blackwell Electric Light & Power Company, Blackwell, Okla., expects in the near future to install in its plant two gas engines, using natural gas for fuel. The engines to be purchased will be 75-hp. and 150-hp., respectively.

Hughes & Deiters, proprietors of the Electric Light Plant and Telephone Exchange, Dickinson, N. D., expect to enlarge the power plant by the erection of a new building and the installation of additional boilers and other equipment. Plans will probably be completed in time to commence work early next spring.

The Cyclone Drill Company, Orrville, Ohio, will open a branch sales office in Chicago to look after its increasing business in the West. The office will be located at 419 Fisher Building and will be in charge of J. F. Munn, who has been connected with the company's plant as engineering expert in the core drill department.

Cleveland Machinery Market.

CLEVELAND, OHIO, January 26, 1909.

Sales of machine tools were light during the week. The market has improved very little since the first of the year. Inquiries are not quite as plentiful as they were, and some fair sized ones that have been pending for several weeks have not yet resulted in the placing of orders. Sales during the week were mostly single tools. The largest inquiry reported was from an Ohio concern for complete equipment for a large lumber plant in the South. Included in the inquiry are eight boilers, a 500-hp. engine and three or four smaller engines, some electric equipment, sawmill machinery and a number of wood and metal working tools. There is a fair demand for second-hand tools, and dealers expect an increase in the supply owing to the placing on the market of the equipment of two or three small plants.

Local builders of machine tools report some improvement in orders and inquiries. In heavy and special machinery few orders have come in recently, but there has been considerable improvement during the past two or three weeks in inquiries for coal and ore handling machinery and for equipment of mines. Estimating departments of builders of this class of machinery are busy and the outlook for taking some good orders soon is regarded as promising. Consulting and contracting engineers also report an increase in inquiries for estimates on proposed new work of various kinds. The demand for locomotive cranes has picked up somewhat, but few orders are coming as yet from the railroads. The demand for pneumatic tools is still very light, but builders look for an improvement soon. Encouraging reports continue to come from manufacturing plants in most lines. Orders show an improvement and many of the local manufacturers are slowly increasing their working forces.

In the foundry trade conditions are improving slowly, the majority of the foundries having more work on hand than they did a month ago.

Reports made at the annual meeting of the Carnahan Stamping & Enameling Company, Canton, Ohio, held January 19, showed that the past year, both in volume of business and earnings, was the biggest in its history. President Edward A. Langenbach and other officers were re-elected. The company has under consideration further additions to its plant during the present year.

At the annual meeting of the Kanneberg Roofing & Ceiling Company, Canton, reports showed a satisfactory volume of business during 1908, considering the depression during the early part of the year.

At the annual meeting of the stockholders of the Canton Boiler & Engineering Company, held last week, Allison D. Housley, the general manager, was also elected president. The company reports that the past year has been a prosperous one and that it has a large number of orders on hand.

The Massillon Bridge & Structural Company, which will build a new fabricating plant in Massillon, Ohio, has been incorporated, with a capitalization of $250,000, by H. A. Croxton, C. S. Davis, C. A. Gates, J. C. Corns and F. H. Snyder.

The McCaskey Register Company, Alliance, Ohio, has called a meeting of its stockholders, to be held February 15, to take action on a proposed increase in the capitalization from $500,000 to $1,000,000, to provide funds for the erection of extensive additions to its plant.

The Deming Company, Salem, Ohio, builder of hand and power pumps, reports a good volume of both domestic and foreign orders. The company's plant is running at full capacity.

The Hydro-Electric & Gas Company, Warren, Ohio, will erect an auxiliary electrical power station, 45 x 118 ft., in which will be installed electrical equipment and two gas engines.

The Superior Iron & Steel Company has completed repairs to the Penn shovel plant at Warren, Ohio, and intends to place the rolling mill in operation this week. The furnaces have been overhauled and a new furnace has been added.

The Brookside Brass Foundry & Mfg. Company, Cleveland, maker of plumbers' brass goods, is increasing its capacity by the addition of new machinery, and has just increased its capital stock from $10,000 to $20,000. The company will probably erect an addition to its plant in the spring.

The Interstate Engineering Company, Bedford, Ohio, reports an improvement in orders and inquiries. The company has about 5000 tons of structural work on its order books at present.

New England Machinery Market.

BOSTON, MASS., January 26, 1909.

The market is spasmodic and no stronger. A few good orders have been booked by the dealers here, and other business promises to close within the week. Totals are affected by individual sales in a way to cause occasional misconception of the true condition of the trade. A week's business may seem large, yet it has resulted from some one large order and a number of insignificant lots, and does not tell the true story of the market. No tangible evidence of a revival of a good trade have been experienced, except, as always, by a few manufacturers who are selling to customers producing articles which go direct to consumers, or whose products consist of machinery used in the manufacture of goods for which there has been a return of demand. The great majority of machine tool builders continue to complain of a slump which started in about the middle of the month. In one case the business for the first 12 days of January was about three times that which has been booked since. The reaction upward may be looked for soon, it is generally expected, though no very high level is expected for the present.

Negotiations for the sale of the business of the Corbin Motor Vehicle Corporation, New Britain, Conn., to Howard S. Hart of that city, which have been pending for some time, have been declared off. Mr. Hart was until recently president of the company.

At the annual meeting of the American Ship Windlass Company, Providence, R. I., William F. Sauter, Philadelphia, was added to the Board of Directors and elected vice-president. Robert S. Riley was re-elected president; E. G. Marble, treasurer; Sidney D. Humphrey, secretary, and G. R. Rebmann, Philadelphia; F. C. Furlow, New York, and C. B. Humphrey and F. S. Manton, Providence, additional directors. The reports showed a satisfactory year in spite of general business conditions, and an increasing demand for the Taylor gravity underfeed stoker built by the company, as well as a profitable market for windlasses and towing machinery.

The Pierce Mfg. Company, New Bedford, Mass., will erect an additional weaving mill, 150 x 165 ft., one story. The London Wash Silk Company, Hartford, Conn., has awarded the contract for an another mill, to be 30 x 100 ft. and two stories. George Pannetton, Waterbury, Conn., carriage builder, has awarded the contract for a two-story factory, 43 x 100 ft.

The city of Hartford, Conn., will be in the market this season for new water pipe and valves and fittings in connection with the expenditure of $50,000 which is a part of the cost of improving fire facilities in the "conflagration area" of the city. The 1909 work will include the laying of a considerable section of 30-in. main.

The Williams Bros. Mfg. Company, Glastonbury, Conn., manufacturer of silverware, is to erect an additional factory building, 40 x 144 ft. and three stories. Only a small part of it will be used in manufacturing, the chief purpose of the new space being for storage and shipping.

The Pratt & Whitney Company, Hartford, Conn., has taken the contract for 140 range finders for the United States Navy.

The city of Springfield, Mass., is considering the establishment of an industrial school for young boys, to be located either in buildings of its own, with its own workshops, or

conducted in conjunction with the present Technical High School.

The Massachusetts Metropolitan Water and Sewerage Board in its annual report asks authority of the Legislature to contract for a new engine for the high service pumping station at Chestnut Hill Reservoir, near Boston, at a cost of $150,000, and recommends the laying of a 60-in. water main, to replace the 48-in. main from the Weston Aqueduct to the Chestnut Hill Reservoir, at a cost of $750,000.

Comparatively little injury was done to machinery in the fire which recently damaged the plant of the Side-Weight Horse Shoe Company, Hartford, Conn.

The McCue Company, Hartford, Conn., manufacturer of automobiles and their parts, has begun the erection of a new manufacturing building on Pliny street, to be 47 x 212 ft., and two stories. The company is not in the market for equipment at this time.

The Atlas Mfg. Company, New Haven, Conn., manufacturer of hardware specialties, states that there is no immediate significance in the recent action of the stockholders in authorizing an increase in capital stock of $30,000.

A development plan before the Massachusetts Legislature is for a canal between Boston and Narragansett Bay, from Fore River, at Quincy, through Brockton and Taunton, to Fall River, Mass., following the Taunton River for a large part of the distance, and including a number of ponds. This would give another inside waterway, designed, according to the promoters, to permit the passage of vessels of fairly large draft.

Milwaukee Machinery Market.

MILWAUKEE, WIS., January 26, 1909.

Taken altogether, the situation in the machinery trade here is difficult to reconcile with the reports of continued depression which seem to be pretty generally made from other large machinery centers. Of course, there are exceptions, as noted in a number of instances; but conditions as a whole are most encouraging, as is indicated by facts brought out in letters and verbal statements from men in nearly every branch of the metal and machinery trades.

Sales of power and electrical machinery loom up larger than those of any other class. Builders of prime movers, which include some of the more important concerns in this city and vicinity, have, during the first business half of this month, been given orders for Corliss engines, gas engines, steam turbines and hydraulic turbines, generators, motors, transformers, &c., aggregating in value upward of $750,000, and manufacturers of various power plant accessories, such as boiler feed pumps, oil pumps, feed water heaters, superheaters, condensers, blowers, valves, storage batteries, switchboards, rheostats, pipe and boiler covering, packing, &c., are sharing to a considerable extent in these orders. The boiler business is somewhat slow, as contracts for power units are running more to producer gas engines and hydraulic turbines than formerly; but such orders as are placed are at relatively good figures.

In contrast to the rather flat character of the trade in iron and steel, which is relieved only by the yearly contracts for castings customarily entered into at this season, is the activity of brass foundries and manufacturers. One prominent firm has been running to its full capacity on a large order for brass fittings executed for one of the principal railroads of the country and its subsidiary lines, so much so as to necessitate the installation of new equipment. Manufacturers of babbit metal, bronze bushings, aluminum parts, &c., are also fairly busy; and the local corrugated and galvanized sheet metal business has held its own surprisingly well, even during the worst period of the depression.

Mining, smelting and ore reduction machinery exhibits a degree of activity which is very gratifying to the several local companies supplying that industry, and this even extends to auxiliary apparatus such as mine pumps, inquiries for which are coming in quite freely. In the line of rock crushing plants one very large contract has been entered into, and even cement mills are buying to some extent.

The most important event in local metal working circles since the opening of the new year has been the formation of the Sivyer Steel Casting Company, which was recently incorporated in this city by Fred L. Sivyer, president; Donald Fraser, vice-president, and W. C. Frye, secretary and treasurer. It has leased one of the foundries of the Northwestern Malleable Iron Company, 80 x 300 ft., and will engage in the production of crucible and manganese steel on a commercial basis. C. R. Messinger, sales agent of the Harbison-Walker Refractories Company, has been engaged as manager and sales agent and will have an interest in the new concern. Mr. Sivyer is identified with the Northwestern Malleable Iron Company, while Messrs. Fraser and Frye are officials of the Chain Belt Company, and, with the additional connections which it has formed, the new company controls a large amount of business from the start.

Other foundries and metal working establishments show considerable activity in the way of new and increased facilities to meet the revival in trade, which is confidently expected to develop satisfactory proportions within the next few months.

The Nortmann-Duffke Foundry Company, whose plant is at Layton Park, a suburb of Milwaukee, has entered upon the erection of a new two-story engine house, 28 x 46 ft., of concrete fireproof construction. This is an addition to its present power plant and will contain a gas producer, gas engine and generator, enabling the foundry equipment to be operated on electric current.

The Heil Company has taken possession of its newly built structural iron and steel plant at Twenty-sixth street and Montana avenue, which is 80 x 140 ft., of steel, concrete and brick. In this location the working force of the company will be materially increased.

The A. J. Lindemann & Hoverson Company, having transferred its entire establishment to the newly extended works on Russell and First avenues, has closed a long time lease with the Hein Company, manufacturer of machine specialties, for the old factory at 348-354 Florida street.

The Davis Company, builder of gasoline engines, recently began the erection of a new factory at Twenty-fourth avenue and Park street, and the Standard Oil Company is putting up a fine new concrete warehouse at the junction of National avenue and the Chicago & Northwest Railroad tracks. Other buildings being rushed to completion in which much structural iron and steel, as well as brick and concrete, are being used are the five-story factory of the Harsh, Smith & Edmonds Shoe Company, the three-story plant of the Clear Lake Artificial Ice Company, a six-story addition to the Robert A. Johnston Company's factory, the new three-story plant of the Milwaukee Barrel Company, the five-story building for light manufacturing being erected by the Kopmeier interests, the foundry of the recently formed Badger Malleable & Mfg. Company of South Milwaukee and the new wire works of the C. Hennecke Company, besides a number of important office buildings, stores and apartment houses. The local situation as it affects future structural iron and steel business may be summarized in the fact that the building permits issued last week were exactly double the number for the corresponding week of a year ago.

In West Allis the Pressed Steel Tank Company is engaged upon an addition 75 x 150 ft., the West Allis Malleable Iron Company completed an extension to its plant, and the Gehrlinger Steel Casting Company has made additions and improvements to its foundry.

Out in the State considerable activity is also manifested. According to the members of the Northwestern Electrical Association, which was in session here last week, a large number of industrial projects are about to be inaugurated, and all manufacturers, contractors, engineers and dealers who are actively interested in building operations or in furnishing equipment for power plants, mills and factories will do well to devote special attention to this section of the country. That view is also confirmed by railroad officials with whom the writer has talked.

A careful canvass of trade conditions among machinery and metal working establishments of Milwaukee and vicinity reveals the fact that, on an average, they show slow and variable but none the less appreciable improvement; and while certain phases of the situation have been disappointing, the prevailing feeling is decidedly optimistic. Prices also are being well maintained.

Bridge and viaduct builders, manufacturers of cranes, telephers and unloading machinery, and all apparatus of a similar character, who have recently shipped out considerable material on contracts, now find additional orders difficult to get, but there is quite a large amount of business in sight.

Machine tool builders state that trade has been spasmodic in character, having mainly comprised orders for small lots or for single machines. The bulk of their support during the past few months has come from shops devoted to specialties, where milling machines, lathes, drills, grinders, &c., can be put to a great variety of uses, rather than from the large manufacturers of standard apparatus, a part of whose present equipment has been lying idle. Considerably more inquiries are, however, now developing, and the outlook for a good run of business within two or three months from now is excellent. This pertains to export as well as domestic trade.

Manufacturers of pumping machinery have taken several important orders from municipalities, among which are two just entered by the Prescott Steam Pump Company for a 4,000,000-gal. compound Corliss pumping engine to be installed by the city of Hobart, Okla., and a 2,000,000-gal. direct action triple expansion pump for the city of Los Angeles, Cal. Among the contracts given the Allis-Chalmers Company is one covering a pump of 25,000,000 gal. capacity to be installed by one of the large industrial plants of the country. The latter company has also been making heavy shipments on orders from steel plants, and this will continue for some weeks to come. Much of this material goes to Gary, Ind., but considerable will also be installed in the East and South.

Philadelphia Machinery Market.

PHILADELPHIA, PA., January 26, 1909.

With business drifting along slowly, it is hard to differentiate between the actual volume done from week to week. The final closing of even a single tool, which may have been dragging along for several weeks or more, under present conditions, frequently turns a poor week into a comparatively good one. Monthly sales in instances do not even represent the true conditions in the trade, as the volume of business on the whole is so small that it does not permit of anything like an equal distribution among builders or merchants. In some instances merchants report a trifle more activity during the past week; in others continued dullness is reported. Buying is still irregular and confined to single tool propositions. With developments in the iron and steel trade generally going forward at a slow pace, the proportion of idle machinery in industrial and manufacturing plants does not decrease very rapidly, and until more activity is shown the machine tool trade will, no doubt, drift along rather slowly.

Sales recently have been confined as usual to propositions of the smaller class. The railroads still keep out of the market as far as any important equipment is concerned. Manufacturers report very little change in the situation, orders are coming in irregularly, and while it appears at times that we are on an upward trend, usually the small bursts of activity are followed by recurring periods of dullness, so that on the whole, little real betterment in the situation is to be noted. The larger plants have made but light gains, some none whatever, although some of the smaller establishments note a better condition of affairs. Inquiries are understood to be a little more plentiful, but as heretofore develop into orders very slowly.

In the new boiler and engine trade the outlook is better. There is quite a volume of business before the trade, covering a wide field. This branch of the trade is encouraged by the improvement in building operations of a character requiring power equipment for various purposes, and some propositions of fair size have been under consideration, with new developments still coming up.

In the second-hand machinery market the situation is practically unchanged. The general dullness of the market is strongly reflected in this branch of the trade, and transactions have been along rather narrow lines. A shade more business has developed in second-hand engines and boilers, but conditions are still very far from satisfactory.

But very little improvement is shown in the general foundry trade. Both steel and gray iron foundries continue to operate irregularly. More business is pending, however, although consumers still show little disposition to contract for heavy tonnages for forward delivery. Jobbing foundries are getting more business from the building trades, but that coming from the machinery field is still comparatively small.

The Baldwin Locomotive Works received orders recently for 20 locomotives for the Great Northern Railroad. This is the first order of any size that has been taken by this company since the first of the year, the bulk of the orders being for single engines, although the Central Railroad of Brazil, which had placed an order recently for nine engines, has increased the number to 15. This company's plant continues to be operated on the same restricted basis as it has for some time back, but it is believed that there will be an improvement in the demand in the near future.

John Wyeth & Brother, Inc., drug manufacturers and chemists, have, it is understood, purchased a plot of ground, 100 x 180 ft., at Twelfth street and Washington avenue, on which it is proposed to erect a 5-story brick and cement fireproof building, with all the modern conveniences for their business, including chemical and pharmaceutical appliances. The new plant will be operated in connection with that now operated by the corporation at Eleventh street and Washington avenue.

The Purvis Machinery & Iron Company, South and Water streets, has decided to erect a three-story warehouse, 70 x 80 ft., adjoining its present location. The building will be used for the storage and display of new and second-hand machinery and tools.

Ballenger & Perrot, architects and engineers, have prepared plans, on which estimates are now being made, for the erection of a mortar mixing plant, to be built in Wilmington, Del., for the Charles Warner Company. Plans regarding the equipment of the plant have not yet been fully considered.

Julius A. Gebauer, manufacturer of textiles, has had plans prepared from which it is proposed to build a new factory and power house in Frankford, Philadelphia. The manufacturing building is to be 60 x 120 ft., four stories, with a wing, 40 x 40 ft. The power house is to be 20 x 60 ft.

State Health Commissioner Dixon, at Harrisburg, Pa., has prepared plans for drainage and sewage disposal in that city, which improvements must be made according to law. The plans are elaborate, including a new sewerage system and a large disposal plant, incurring an expenditure of several million dollars.

Government Purchases.

WASHINGTON, D. C., January 26, 1909.

The following bids were opened January 19 for machinery for the navy yards:

Class 1, one turret lathe—Bidder 49, W. H. Foster Company, New York, $3421; 109, Niles-Bement-Pond Company, New York, $3950.

Class 2, one turret lathe—Bidder 49, W. H. Foster Company, New York, $1415; 52, Fairbanks Company, New York, $1140.

Class 3, one pipe threader and cutter—Bidder 38, Drew Machinery Agency, Manchester, N. H., $1034 and $612; 51, Fairbanks Company, New York, $490.50; 56, R. W. Geldart, New York, $588; 70, Hall Brothers Company, Erie, Pa., $616; 101, Manning, Maxwell & Moore, New York, $1000; 109, Niles-Bement-Pond Company, New York, $839 and $873; 145, Stoever Foundry & Mfg. Company, Meyerstown, Pa., $850; 149, Standard Engineering Company, Elwood City, Pa., $1346; 160, Tucker Tool & Machine Company, New York, $599.

Class 4, one triple geared engine lathe—Bidder 51, Fairbanks Company, New York, $4717.70; 58, Garvin Machine Company, New York, $3680; 76, I. H. Johnson, Jr., Company, Philadelphia, Pa., $4058 and $4156; 101, Manning, Maxwell & Moore, New York, $3550 and $5225; 109, Niles-Bement-Pond Company, New York, $3998; 155, Springfield Machine Tool Company, Springfield, Ohio, $4397.

Class 51, one 25-hp. motor—Bidder 26, James Clark, Jr., Electric Company, Louisville, Ky., $556; 59, General Electric Company, Schenectady, N. Y., $456; 86, Lincoln Motor Works, Cleveland, Ohio, $577; 100, McKay Engineering Company, Baltimore, Md., $469; 111, Northern Electrical Mfg. Company, Madison, Wis., $435; 143, B. F. Sturtevant Company, Hyde Park, Mass., $533; 148, Sprague Electric Company, New York, $442; 174, Western Electric Company, New York, $442.50, $426.50 and $590; 187, Diehl Mfg. Company, Elizapethport, N. J., $488.10 and $463.16.

Class 52, one motor generator set and switchboard—Bidder 26, James Clark, Jr., Electric Company, Louisville, Ky., $653; 40, Eck Dynamo & Engine Company, Bayonne, N. J., $709; 59, General Electric Company, Schenectady, N. Y., $572; 100, McKay Engineering Company, Baltimore, Md., $674; 103, National Electrical Supply Company, Washington, D. C., $715; 111, Northern Electrical Mfg. Company, Madison, Wis., $503; 143, B. F. Sturtevant Company, Hyde Park, Mass., $642; 148, Sprague Electric Company, New York, $650; 187, Diehl Mfg. Company, Elizabethport, N. J., $400 and $578.50.

Class 75, three horizontal centrifugal pumps—Bidder 15, F. S. Banks & Co., New York, $32; 38, Drew Machinery Agency, Manchester, N. H., $49.80 and $41.90; 56, R. W. Geldart, New York, $43.94; 95, Montgomery & Co., New York, $43.50; 101, Manning, Maxwell & Moore, New York, $54.25; 103, National Electrical Supply Company, Washington, D. C., $45; 139, Rumsey & Co., Seneca Falls, N. Y., $41.35; 166, Vermilye & Power, New York, $43; 88, Excelsior Equipment Company, Pittsburgh, Pa., $48.50; 190, Berry & Aikens, Philadelphia, Pa., $54; 191, Central Metal & Supply Company, Baltimore, Md., $43.

Class 91, two electric motors—Bidder 26, James Clark, Jr., Electric Company, Louisville, Ky., $300; 59, General Electric Company, Schenectady, N. Y., $540; 86, Lincoln Motor Works, Cleveland, Ohio, $369.50; 111, Northern Electrical Mfg. Company, Madison, Wis., $297; 143, B. F. Sturtevant Company, Hyde Park, Mass., $274; 148, Sprague Electric Company, New York, $290; 174, Western Electric Company, New York, $305 and $285; 185, Crocker-Wheeler Company, Ampere, N. J., $415; 187, Diehl Mfg. Company, Elizabethport, N. J., $295; 193, Burke Electric Company, Erie, Pa., $361.

Class 102, six pneumatic riveting and 12 pneumatic chipping hammers—Bidder 24, Chicago Pneumatic Tool Company, New York, $492; 25, Cleveland Pneumatic Tool Company, Cleveland, Ohio, $342; 73, Independent Pneumatic Tool Company, Chicago, Ill., $571.50; 75, Ingersoll-Rand Company, New York, $394.50; 122, Pittsburgh Pneumatic Company, Canton, Ohio, $387; 153, Standard Railway Equipment Company, St. Louis, Mo., $606.

Class 103, eight reversible air drills and two pneumatic holders-on—Bidder 24, Chicago Pneumatic Tool Company, New York, $390; 25, Cleveland Pneumatic Tool Company, Cleveland, Ohio, $366; 73, Independent Pneumatic Tool Company, Chicago, Ill., $455.80; 75, Ingersoll-Rand Company, New York, $592; 153, Standard Railway Equipment Company, St. Louis, Mo., $546.

Class 104, two valve reseaters—Bidder 15, F. S. Banks & Co., New York, $325; 56, R. W. Geldart, New York, $325; 83, Knox & Brother, New York, $325; 95, Montgomery & Co., New York, $325; 101, Manning, Maxwell & Moore, New York, $325; 120, Albert Schade Company, Philadelphia, Pa., $325; 156, Richard D. Sherman, New York, $325; 160, Tucker Tool & Machine Company, New York, $325; 162, Theodore C. Ulmer, Philadelphia, Pa., $325; 166, Vermilye & Power, New York, $325; 188, Excelsior Equipment Company, Pittsburgh, Pa., $325; 191, Central Metal & Supply Company, Baltimore, Md., $325.

Class 106, one dynamo—Bidder 103, National Electrical Supply Company, Washington, D. C., $25.60; 166, Vermilye & Power, New York, $26.70; 174, Western Electric Company, New York, $23.40.

The following bids were opened January 18, Circular No. 486, for machinery for the Isthmian Canal Commission:

Class 29, one combined punch and shear—Bidder 22, Fox Brothers & Co., New York, $28.60; 43, Manning, Maxwell & Moore, New York, $32; 59, H. A. Rogers Company, New York, $30; 69, Vermilye & Power, New York, $31.75; 71, Francis Witte Hardware Company, New York, $28.75.

Class 30, one hand bolt cutter—Bidder 22, Fox Brothers & Co., New York, $44.44 and $38.50; 67, Tucker Tool & Machine Company, New York, $41.75; 69, Vermilye & Power, New York, $43.75; 71, Francis T. Witte Hardware Company, New York, $39.75 and $45.50.

Class 35, 12 windlasses—Bidder 3, American Ship Windlass Company, Providence, R. I., $483.60; 30, Hyde Windlass Company, Bath, Me., $480; 37, Thomas Laughlin Company, Portland, Ind., $341.40; 44, Marine Mfg. & Supply Company, New York, $342; 61, W. H. Snelling, New York, $351.

The F. A. Brownell Motor Company, Rochester, N. Y., has been awarded contract for a motor for the tender, Zizania, at $1053.30.

The Atlanta Machine Works, Atlanta, Ga., has been awarded contract at $63,141 for furnishing powder hoists for the army, under bids opened December 31.

HARDWARE

SCHEMES for changes in existing systems are continually being brought forward. Some are meritorious, either being based on proved defects or setting forth obvious improvements. Any suggested change in Government methods should have one of these basic elements to commend it. That a proposition for a change is supported by a number of people does not prove that it would meet a general want or correct a pinching defect. Supporters of any new proposition can be found if it is presented in anything like an attractive form. The novelty commends it to those who tire of an unvarying continuance of old systems and methods. Striving for something new has always been characteristic of the human race. Had it been otherwise, there would have been no progress, but we would still be living in caves and clothing ourselves in skins and leaves. Nevertheless, it behooves us to look thoroughly into new propositions and see that their chances of benefit are greater than their possibilities of harm. The new thing proposed is not always worthy of adoption even if it may seem to provide something more convenient than hitherto available. These thoughts are provoked by the proposition of the Joint Postal Commission of Congress to establish a cheap postal currency, to facilitate the transmission by mail of small amounts of money, running from 1 cent to $5. The report of the commission states that the present system of money orders is too expensive and cumbersome for the transmission of very small sums by mail. A plan is therefore recommended by which this postal currency can be issued with a minimum of labor and time by a postmaster and at about the least possible cost to the purchaser.

Now, let us apply the test as to merit. Does this scheme correct a serious defect in the existing system of transmitting money by mail? or, if not, does it supply an obvious improvement? The commission admits in its report that the lack of a postal currency is "not a structural weakness" of the system in use. The proposed postal currency is recommended as "a convenient, easy and cheap method of transmitting small sums by mail." The commission's report does not say that any evidence has been presented to it or collected by it indicating a widespread popular demand for such a currency. We firmly believe that if an effort was made to test the sentiment of the people in both great centers of population and sparsely settled sections, it would be found that the overwhelming majority are absolutely uninterested in this question. Of those declaring in favor of such a currency, many would undoubtedly be influenced by sentimental or academical considerations, being by temperament inclined to welcome innovations and experiments of any kind. We are confident that few would be found who could testify truly that they have daily, weekly or even monthly necessities for transmitting money by mail that are not satisfactorily met under the existing money order system.

If no strong popular demand has impelled the commission to make this recommendation, from what direction has the initiative come? Does not the scheme owe its origin to certain business interests, who hope to find in it an efficient means of extending their sales? The establishment of a postal currency would be of no benefit to a manufacturer having only a local trade or who sells to merchants or only turns out heavy products, nor would it be of assistance to a merchant whose trade is confined to his immediate locality. It is plain that great assistance would be directly given by the Government to interests which have little or no local trade, but rely upon mail orders for their support. The large houses, which have built up a highly lucrative trade founded on mail orders received from all parts of the country, are by no means satisfied with what they have been so well able to accomplish with the facilities so far provided by the Government; they yearn for the practically illimitable field of small and cheap articles of merchandise, in which they perceive that their sales could be enlarged if the cost of money orders was cheapened. For the promotion of this class of trade a postal currency system would be ideal. The local retail merchant in the rural district could then be cut out of still more business than he now loses through the activities of the mail order houses and department stores located in large cities, but whose field of labor lies among agriculturists. It appears to be simply another part of the general campaign to secure more mail order business. Those patrons of the postal service who will find in it a convenience will be largely comprised of patrons of mail order houses. Members of Congress who do not favor the centralization of retail trade in the great cities and the further blighting of rural retail stores should vigorously oppose this proposition.

The trade are to be congratulated that, as stated in the letter of our Washington correspondent on another page, the annual Post Office Appropriation bill has been reported to the House without provision for a parcel post in any form. One point of danger is thus passed. There should be, however, no relaxing of effort not only to impress upon our law makers the mischievousness of the proposed legislation, but also to educate the public in regard to the disadvantage and disturbance which would result from the systematic distribution of merchandise by mail.

Condition of Trade.

Business after the passing of the special conditions which characterize it in the holiday season and at the turn of the year is settling down to its regular course. The financial results of 1908 having been determined, attention is now given to an active prosecution of business with a view to making the best of the opportunities which present themselves and to render the present year an improvement upon the last. In regard to the prospect for doing this there is a decidedly hopeful feeling, with some difference of opinion as to how soon a marked increase in the demand may be expected. Thus far the quickening in the movement of trade since the expressions of sanguine anticipation, entertained by some a month or two ago, has been disappointing, merchants generally continuing to place orders with caution and for moderate quantities of goods. Notwithstanding the improvement reported by some manufacturers since the middle of the month, the general movement of buying is along conservative lines. Both wholesale and retail houses are evidently keeping their stocks down to a rather low working level, being willing to take the chances of the market both in the matter of prices and supply of goods. While this re-

sults in what is termed a moderate business, it must be remembered that the aggregate is large in volume, as the merchandise thus purchased is to satisfy a demand that comes from practically every town and hamlet in the country. Under existing conditions consumption is probably going on more rapidly than the replenishing of stocks by the merchants, who, on the whole, are understocked rather than overstocked. With the existence of generally prosperous conditions, especially throughout the agricultural sections, and a fair though not full employment of labor in industrial parts of the country, a steady demand for goods to enable the trade to meet the requirements of their customers is to be looked for. If there should be a decided increase in this demand, and a consequent liberal purchasing, there are undoubtedly many lines in which something of a scarcity would develop in a short time. Prices continue in the main without important change. It is evident that manufacturers in a good many lines are working to keep the market from declining, and in these efforts they are to be credited with a fair degree of success. Reductions here and there are, however, noticeable and attractive orders with judicious testing of the market would doubtless in many instances secure concessions. There is a good deal of complaint about collections.

NOTES ON PRICES.

Wire Nails.—Demand, while showing an increase, is not heavy and is confined largely to actual requirements. There is little incentive to jobbers to place large stock orders, as their trade does not require it, and mills are in a position to make prompt shipments. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

New York.—While local demand is moderate it is considered quite satisfactory for the season. The regular price for Nails in small lots at store is $2.30, but this figure is not inflexibly maintained.

Chicago.—The distinct improvement noted in the third week of the month over the first two brings reassurance that the general trend is in the right direction. Buying is not as brisk as it was hoped it would be at this time, and yet it is all that could reasonably be expected under the circumstances. Distributers are buying close to current demand, since prompt shipments are obtainable, and there is therefore no need of anticipating requirements. Prices continue to be held at an even level. Quotations are as follows: $2.13 in car lots to jobbers, and $2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New orders being placed for Wire Nails are heavier than in the first two weeks of this month, but are not up to expectations of the mills by any means. A strong disposition is shown on the part of jobbers and consumers to place orders only for actual needs, and the amount of new tonnage being entered by the mills is smaller than anticipated. It is believed that next month or early in March demand for Wire Nails will be in full swing, and the mills will be busy. There is no delay on the part of the mills in filling orders which are shipped out promptly. It is stated that regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

Cut Nails.—Distribution by the mills is on a limited scale, owing to lack of active demand. Shipping on contract orders is in fair volume, but new business continues light. The regular price for Steel Cut Nails is $1.80, base, per keg, f.o.b. Pittsburgh, for less than carloads, and $1.75 for carloads and larger lots, but these figures are shaded in some cases. Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails in the Western market, but no difference in price is made in the East.

New York.—The demand for Cut Nails, which was somewhat stimulated by the difference between their price and that of Wire Nails, is not so active. Steel Cut Nails are held on the basis of $2.15 per keg for small lots, at store, but this price sometimes yields under pressure.

Chicago.—Trade in Cut Nails is quiet, with no movement beyond the current orders placed to meet actual present requirements. Jobbers' stocks are not being increased, though some filling in orders are being placed to complete assortments. The mills are not pressing for business, and as a result prices hold fairly firm, with a possible concession of 5 cents a keg on carload lots. We quote Chicago prices as follows: In car lots to jobbers, Iron Cut Nails, $2.08; Steel Cut Nails, $1.98.

Pittsburgh.—New demand is light and is nearly altogether in small lots for actual needs. Specifications against contracts are fair, but the actual condition of the Cut Nail market is not satisfactory to the mills by any means. Not much betterment in demand can be expected until the building trade opens up actively. The regular price for Steel Cut Nails is $1.80, base, per keg, f.o.b. Pittsburgh, for less than carloads, and $1.75 for carloads and larger lots, but these figures are shaded in some cases. In the Western market Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails, but this differential is not observed in the East.

Barb Wire.—A limited spring demand has materialized thus far, being smaller than anticipated by manufacturers. The disposition of the trade at large is to restrict orders to immediate requirements. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Chicago.—Although comparatively light in the aggregate, the tonnage of new business is all that could be expected under the circumstances at this season of the year. The outlook for a steady increase in buying from all reports is quite promising. The retarding influences that have slowed up trade in some lines do not reach the consumers of Barb Wire, and there seems to be no good reason to apprehend a shortened spring demand. Quotations are as follows: Jobbers, Chicago, car lots, Painted, $2.28; Galvanized, $2.58; to retailers, car lots, Painted, $2.33; Galvanized, $2.63; retailers, less than car lots, Painted, $2.45; Galvanized, $2.75; Staples, bright, in car lots, $2.25; Galvanized, $2.55; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—Some orders are coming from Southern territory, but they are not as large as expected, and jobbers and consumers alike are showing a disposition to buy only as actual needs require. It is stated that prospects for spring trade are fair, and it is hoped that next month or early in March demand will be heavier than it is now. We are advised that regular prices are being maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Plain Wire.—Similar conditions which obtain in the Barb Wire market are prominent in the demand for Plain Wire. While a good business is anticipated, buyers are conservative in the quantity ordered, prefering to wait for more evidence of large demand before placing contract orders. Prices are well maintained. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain, and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Chicago.—The manufacturers of Fencing and other Wire products, while anticipating a prosperous spring trade, are buying conservatively as, in view of the promptness with which new supplies can be obtained, they can well afford to do. There is a desire also to avoid future commitments as far as possible until the new crop estimates are more fully outlined. All signs now point to a fairly satisfactory trade for the coming season, and next month is expected to develop a larger volume of business. Regular prices are, it is stated, being satisfactorily maintained. We quote as follows: Car lots to jobbers, $1.98, f.o.b. Chicago, and to retailers, $2.05.

Pittsburgh.—The mills are receiving fair specifications against contracts, but new orders being placed are for small lots for current needs. It was hoped that by this time demand for spring trade would be in full swing, but this has not been realized. It is believed the coming season will be a busy one for Fence manufacturers and other consumers of Wire, and there is nothing in sight now to indicate that this belief will not be realized. It is stated that the mills are maintaining prices.

Rivets.—The weakness which has for some time prevailed in Tinners' and Miscellaneous Rivets continues to command attention, but quotations have apparently reached a point where the incentive to make further concessions is pretty well eliminated.

Lanterns.—Buyers are giving a good deal of attention to the Lantern market, which presents some features of irregularity, as recently suggested in these columns. Competition for the business of jobbers is sharper than for quite a long time, and has resulted in a marked scaling down of prices, especially on Tubular Lanterns, which are perhaps 50 cents per dozen lower than last year.

Shot.—Under date of January 25, a new schedule of prices was sent out by manufacturers of Lead, Shot showing a decline of 10 cents per bag of 25 lb. on Drop, Buck and Chilled. Dust Shot remains unchanged. Following are the new prices which are subject, as usual, to a discount of 10 cents per bag on ton lots:

Drop Shot, sizes smaller than B, 25-lb. bags, $1.70 per bag; bags ..... $0.40 per bag.
Drop Shot, B and larger sizes, 25-lb. bags, $1.95 per bag; 5-lb. bags ..... $0.40 per bag.
Buck and Chilled Shot, 25-lb. bags, $1.95 per bag; 5-lb. bags ..... $0.45 per bag.
Dust Shot, 25-lb. bags, $2.30 per bag; 5-lb. bags .. $0.50 per bag.

Bolts and Nuts.—No changes have been made in established prices by manufacturers of Bolts and Nuts, many of whom participated in a conference last week. Hopes for a further advance have, it is said, been disappointed because of the moderate amount of business which is coming to hand.

Window Glass.—In our reference to the Window Glass market last week the report of the action of the Columbus meeting was given as "not officially confirmed." According to later authoritative advices the formation of the Imperial Glass Company has not been abandoned, but changes have been made in the manner of financing the project which are of minor importance. While the company is no nearer completion than it was a month ago, a new committee has been named to further the organization plans. The strike for a flat scale of wages which commenced December 19 resulted in closing all but about 700 pot capacity of hand operated plants. Many of those now in operation are co-operative and are not affected by the payment of any fixed scale of wages. It is estimated that hand operated factories are turning out an average of about 52,225 50-ft. boxes a week, and that about the same quantity is being made by the machine factories, or a total monthly output of about 400,000 boxes. If there had been no strike it is figured that the total output for the past five weeks would have been in the neighborhood of 500,000 boxes more than have been produced. Buying is generally for actual requirements by both jobbers and retail merchants, and owing to the uncertainty of the future condition of the market prices are unsettled. While discounts from jobbers' list are nominally 90 and 25 per cent. for Single and 90 and 30 per cent. for Double, quotations have recently been made as low as 90 and 35 per cent. on Single and 90 and 40 per cent. on Double.

Rope.—While the demand continues in about the same volume as during the past few weeks, with perhaps a little improvement, a better feeling among the trade is indicated by more frequent inquiries from buyers with prospects of larger orders in the future. The quotation of 8¼ to 8½ cents, base, for Pure Manila Rope has become more general. General quotations on small quantities of Rope, 7-16 in. in diameter and larger, are as follows: Pure Manila, 8¼ to 8½ cents; Pure Sisal, 6¾ to 7 cents. Mixed grades of both kinds grade down in price according to quality. These prices are sometimes shaded ¼ cent on larger orders. Jute Rope, ¼-in. and up, No. 1, is 6¼ to 6½ cents; No. 2, 5¾ to 6 cents.

Linseed Oil.—As prices of Oil have thus far been sustained by crushers, with the possibility of further advance, the market shows an increased activity. Some buyers who have been holding off have come into the market and have placed contract orders for delivery through June. This movement is not at all general, as the price of Seed is a little lower, which in some degree reduces confidence in the stability of the Oil market. Oil stocks in consumers' hands are low throughout the country and requirements are expected to increase with the advent of spring demand. Quotations in 5-bbl. lots are as follows: State and Western Raw, 54 cents per gallon; City Raw, 55 cents per gallon. Boiled Oil is 1 cent advance on Raw.

Spirits Turpentine.—Local demand during the week has been moderate on an advancing market, which has fallen off again, the next result of the fluctuations being 1¼ cents advance on last week's quotations. New York market is represented by the following quotations: Oil Barrels, 44½ to 45 cents; Machine Made Barrels, 45 to 45½ cents per gallon.

A COMMITTEE of Hardware merchants, both retailers and jobbers, of Boston, Mass., is working with the Membership Committee of the Boston Merchants' Association, which has just been merged in the Boston Chamber of Commerce. The Hardware Committee consists of Samuel A. Bigelow, J. H. Williams, John B. Hunter, D. Fletcher Barber, William Q. Wales and H. M. Sanders. The members have been active in their work and already 23 applications for membership have been received from affiliated trades, including wholesale and retail Hardware, machine tools and supplies, plumbing and plumbing supplies, iron and steel, &c. The Chamber of Commerce and Merchants' Association had 1000 members each at the time of their merger, and it is hoped to increase the combined number to 5000 by June 1 next.

JACOB MOHR, president of the Mohr-Jones Hardware Company, Racine, Wis., died January 9. He was born in Prussia in 1850, and came to the United States at the age of 19, making Racine his home. Mr. Mohr was a man of many amiable qualities, and had the respect of his competitors, as well as the confidence and esteem of the community in which he lived. The business will be continued as in the past.

IN a reference in a recent issue to the Florida Retail Hardware Association the Bond & Bours Company, wholesale and retail Hardware, Paints, &c., Jacksonville, was mentioned as a member of the organization. The company advise us, however, that it is not a member, and has not intimated verbally or otherwise its desire to become affiliated with the association.

EDWARD B. NEAL, a well known and highly respected Hardware merchant of Wiscasset, Maine, died January 16, at the age of 76. During the hour of his funeral all the business places of the town were closed.

M. G. RODEARMEL, 206 Commercial Building, Minneapolis, Minn., is sending out his annual memorandum book, referring to the numerous lines for which he acts as manufacturer's agent in Minnesota, North and South Dakota, Iowa, Kansas, Missouri and Oklahoma.

RETAIL HARDWARE CONVENTIONS.

During the next few weeks the following retail Hardware conventions will be held, the list being arranged in the order of dates:

MISSOURI RETAIL HARDWARE ASSOCIATION, February 3-5, St. Louis. Hardware Exhibition. Secretary, F. D. Kansteiner, 1008 Market street, St. Louis.

WISCONSIN RETAIL HARDWARE ASSOCIATION, February 3-5, Milwaukee. Convention and Hardware Exhibition at Public Service Building. George W. Kornely, secretary Exhibit Committee, 806 Third street, Milwaukee. Secretary, C. A. Peck, Berlin.

CONNECTICUT RETAIL HARDWARE ASSOCIATION, February 8 and 9, Waterbury. Headquarters at Hotel Elton. Secretary, J. DeF. Phelps, Windsor Locks.

OKLAHOMA RETAIL HARDWARE AND IMPLEMENT DEALERS' ASSOCIATION, February 9-11, Oklahoma City. Convention and Hardware Exhibition at Exposition Hall. Secretary, D. C. Patterson, Bassett Building, Oklahoma City.

ONTARIO RETAIL HARDWARE AND STOVE DEALERS' ASSOCIATION, February 9-11, Hamilton. Headquarters and convention at the Waldorf Hotel. Secretary, Weston Wrigley, 10 Front street, East, Toronto.

FLORIDA RETAIL HARDWARE ASSOCIATION, Tampa, February 10 and 11. Secretary, W. K. Jackson, Lakeland.

IOWA RETAIL HARDWARE ASSOCIATION, February 9-12, Des Moines. Convention at Yeoman's Hall. Hardware Exhibition at the Shriners' Temple. Headquarters at Savery Hotel. Secretary, A. R. Sale, Mason City.

PENNSYLVANIA RETAIL HARDWARE ASSOCIATION, February 10-12, Philadelphia. Headquarters and convention at Bellevue-Stratford. Hardware Exposition at First Regiment Armory. Secretary, W. P. Lewis, Huntingdon.

WEST VIRGINIA RETAIL HARDWARE ASSOCIATION, February 16-18, Charleston. Secretary, Leslie Hawker Shinnston.

NEBRASKA RETAIL HARDWARE ASSOCIATION, February 16-19, Omaha. Convention and Hardware Exhibition, at the Auditorium. Secretary, J. Frank Barr, Lincoln.

NEW YORK STATE RETAIL HARDWARE ASSOCIATION, February 16-19, Rochester. Headquarters and Convention at Hotel Seneca. Hardware Exhibition at Convention Hall. Chairman Exposition Committee, Louis J. Ernst, Rochester. Secretary, J. B. Foley, Syracuse.

ILLINOIS RETAIL HARDWARE ASSOCIATION, February 17-19, Springfield. Convention at the State capitol. Hardware Exposition at the State armory; space in charge of F. B. Schlitt, Springfield. Secretary, L. D. Nish, Elgin.

KENTUCKY RETAIL HARDWARE AND STOVE DEALERS' ASSOCIATION. February 23-25, Louisville. Hardware Exposition. Headquarters at Seelbach Hotel. Secretary, J. M. Stone, Sturgis.

MINNESOTA RETAIL HARDWARE ASSOCIATION, February 23-26, Minneapolis. Convention and Hardware Exposition at the Armory. Secretary, M. S. Mathews, Guaranty Building, Minneapolis.

OHIO HARDWARE ASSOCIATION, February 23-25, Columbus. Convention and Exposition at Memorial Hall; W. M. Crumrine, Chairman Exhibit Committee, Salem. Secretary, Frank A. Bare, Mansfield.

COLORADO RETAIL HARDWARE ASSOCIATION, February 25-27, Denver. Headquarters and convention at Albany Hotel. Secretary Adolph Unfug, Walsenburg.

INDIANA RETAIL HARDWARE ASSOCIATION, March 2-5, Indianapolis. Headquarters, Hotel English. Hardware Exposition. Secretary, M. L. Corey, Argos.

SOUTH DAKOTA RETAIL HARDWARE ASSOCIATION, March 2-5, Huron. Convention and Hardware Exposition at the Auditorium. Secretary, H. E. Johnson, Redfield.

CALIFORNIA STATE RETAIL HARDWARE ASSOCIATION, March 10-12, Oakland. Secretary, L. R. Smith, Oakland.

NEW ENGLAND RETAIL HARDWARE DEALERS' ASSOCIATION, March 11-12, Springfield, Mass. Hardware Exhibition. Secretary, Charles L. Underhill, Somerville.

Carolinas Hardware Association.

The convention of the Retail Hardware Association of the Carolinas, T. W. Dixon, secretary, Charlotte, will be held during the first week of July, the convention opening on Tuesday, at Asheville, N. C. The headquarters will be at the Battery Park Hotel, where there is abundant accommodation for the business sessions and Hardware exhibits, all under the same roof. Otis Green, Otis Green Hardware Company, Asheville, is chairman of the Exhibit Committee, and will be pleased to answer any inquiries in regard to space.

Ohio Hardware Association.

Among the speakers who will make formal addresses at the convention of the Ohio Hardware Association will be G. H. Maxwell of Chicago and W. C. Holman of the *Business Philosopher*, whose subject will be salesmanship. C. H. Williams, Streator, Ill., first vice-president of the National Retail Hardware Association, will also attend the meeting, and an invitation has been extended to Mr. Moody of the Chicago Association of Commerce. In the way of entertainment Tuesday evening's function will be unique and enjoyable; on Wednesday evening there will be a theater party. Special arrangements are being made for entertaining on a liberal scale the ladies who accompany the members to the convention.

Pennsylvania Retail Hardware Association.

The Committee of Arrangements for the convention of the Pennsylvania Retail Hardware Association, to be held in Philadelphia, February 10, 11 and 12, held its regular meeting at the Bellevue-Stratford Hotel on the 21st inst. It was announced that 80 per cent. of the space for exhibition purposes, in the First Regiment Armory, had been disposed of, and that a number of additional applications for space were in hand. The exhibition will be open to the delegates during the morning and evening hours, the general public being admitted to the night session upon charge of a nominal admission fee. The afternoons will be devoted to the general sessions of the convention, which will be held at the Bellevue-Stratford Hotel. On Thursday evening, the 11th, a smoker will be tendered the visiting delegates by the Hardware Merchants' & Manufacturers' Association of Philadelphia.

FOR the greater convenience of customers and to facilitate business, J. N. Eberle & Co., Augsburg-Pfersee, Bavaria, Germany, operating cold rolling mills and manufacturing Springs, Saws and Files of every description, are publishing instead of catalogues, covers in which the price sheets of the firm can always be easily attached or changed, each customer receiving a cover containing only price sheets of articles in which he is especially interested. In the future, if new commodities appear or prices are altered, the customer will be sent new sheets without special request, that will enable him to complete, revise and keep up to date his list by changing the leaves. Each cover contains a list of the concern's products and a post card, by means of which the customer may indicate which articles he desires to be kept regularly informed about. The lists appear in English currency, in English and German; German currency, in German, English and Spanish; French currency, in French, Spanish and Italian. The prices are uniform as issued and any quantity of each sheet can be obtained. No sheet has a name and as a large discount is granted on all list prices, merchants may circulate the sheets with their own firm name directly to their clients, quoting them a smaller discount.

JAMES NUGENT, Wilwaukee, Wis., died January 18, at the age of 60 years. He was prominent in Northwestern Hardware circles for many years, being connected successively with the houses of Clarence Shepard & Co., E. H. Daniels & Co. and John Pritzlaff Hardware Company.

RICHARD C. GOODELL, vice-president of the Goodell Company, Antrim, N. H., manufacturer of Cutlery and Hardware Specialties, has been appointed to the staff of the Governor of New Hampshire, with the rank of colonel.

Manufacturers as Sales Agents for Catalogue Houses.

ONE of the giant catalogue houses has brought out something new in the way of canvassing for business. This concern is approaching manufacturers of standing in the trade with a view to having them act as agents for the sale of their wares to their employees, the manufacturer being responsible for the goods thus purchased.

The Introductory Letter.

It will be recalled that in our issue, December 31, we published a circular letter sent out by this house soliciting the business of manufacturers generally. This letter suggested that whenever anything in the way of a Wagon or Buggy, Office Furniture, Supplies, Hardware of any sort, a Safe, a Stove, Belting and Mill Supplies, a Lamp or Lantern, Toilet Paper, Harness, Rubber Hose, a Clock for the factory or office, was wanted, it might be readily obtained by dropping the house a line. The manufacturers' household and family requirements were also covered by the offer; nothing was overlooked that might inflate the sales volume.

These circular letters were sent only to well rated and responsible concerns whose credit was regarded as satisfactory. Accordingly it was not necessary to send cash with order, but the goods so ordered might be paid for at the end of the month.

The letter also intimated, and this of course was its chief purpose, that "a number of factories with whom we (the catalogue house) do business encourage their employees to order goods from us," and goods so ordered through the manufacturer addressed could also be paid for at the end of the month.

This is a decidedly new departure with the catalogue houses who have heretofore confined their operations to a cash with order basis. Of course the credit of the concerns thus approached is high and there is little doubt that if they ordered anything payment would be duly made.

The proposition also is a somewhat audacious one, in that it solicits dealings with the manufacturer's employees, not directly, but through the manufacturer, who really becomes responsible for the payment of goods ordered by his employees in this way. The manufacturer would thus become a canvasser or sales agent for the catalogue house, and do his part toward swelling its coffers.

Heretofore the patrons of the catalogue houses have usually been found among the agriculturists of the country. This bold and enterprising project indicates that this large field of trade is already too restricted for a house doing business by the millions, and that customers in other fields must be had. Of course, it is possible that some of the farmers are finding out that the "low prices" of the catalogue houses are not as low as they seem, and that the quality of the goods is not always satisfactory; and that as a result of their experience farmers are cutting out the catalogue house and dealing more with the local merchant, as formerly. If this is the case, and the sales volume is to be maintained and enlarged, new recruits are necessary to fill the gaps in the ranks.

Letter No. 2.

Just how this catalogue house is carrying on its campaign among the factories is set forth in the correspondence which is reproduced below. This was drawn out by a prominent manufacturing concern in the Middle West, which acknowledged receipt of the first letter in the series, to which reference is made above, and suggested that a copy of the complete catalogue of the house be sent. The form of reply to this letter was as follows:

> We acknowledge receipt of your letter asking us to send you our large catalogue, and we thank you for this request and also for your expression of good will.
>
> We are mailing the catalogue under separate cover, and it should reach you in the same mail

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with this letter or the day following. We will be very glad to have you keep this book conveniently at hand to refer to, and whenever we can serve you to your advantage send us your order.

We also thank you in advance if you would give your office and factory help and other employees the opportunity of referring to this catalogue and sending us orders.

It may be more convenient if we furnish you with enough catalogues to give one to each of your employees instead of depending upon them to refer to the book in your office. We will be very glad indeed to do this and if you will write us how many people you employ, we would be glad to have the privilege of sending enough catalogues to you, prepaid, so you could distribute a book to each employee.

Thanking you in advance for this information, and bespeaking your further interest and influence, we are,

Yours very truly,

P. S. If any of your employees should desire to order and pay for the goods at the end of the month, we will send the goods and charge them to your account if you authorize us to do so.

Here, it will be observed, that the matter of business dealings with the employees is again brought out and in a way not to be mistaken or lost sight of. "If it would be more convenient" for the manufacturer, the Chicago people would furnish him enough catalogues to hand one to each of his employees "instead of depending upon them (the employees) to refer to the book in your (his) office." The postscript is also straightforward and right to the point in its expression of considerate willingness to charge up to the manufacturer's account any goods ordered by his employees.

Letter No. 3.

Shortly after the receipt of form letter No. 2 the manufacturer got another to the following effect:

It occurs to us that you would find it very convenient to have a regular form to attach to each order which is to be shipped on open account, authorizing us to charge the amount to you. This would apply especially to the orders of employees to whom you have extended the open account privilege and the blank could also be used on your own orders in place of the letter which you would probably write. We have accordingly gotten up the enclosed Requisition Book for this purpose which we trust you will find a convenience, and we hope that you will have frequent use for it. If you will kindly fill out one of the requisitions and attach it to each order sent in which you desire charged to your account, we shall greatly appreciate it, although this is not a requirement. When your supply of these blanks runs low we shall be glad to send you another book upon request.

We are also sending you under separate cover, a supply of order blanks, and shall be very glad to furnish a further supply whenever you have need for them.

Yours very truly,

P. S. In our letter of recent date mailed you at the time we mailed the catalogue, we suggested that you might find it a convenience to have us ship a sufficient number of catalogues to supply your employees individually. We will appreciate the opportunity of doing this if it meets with your approval, and upon receipt of advice from you as to the number of catalogues that could be used to advantage in your institution we will have the supply of catalogues forwarded to you prepaid.

This communication directly brings up the subject of orders, especially from the employees, and indicates how far the catalogue people are ready to go to secure the business. It is needless to say that the manufacturer thus approached has not asked for any further supply of order blanks or requisition books, nor intimated that any of his employees would like to receive catalogues.

Requisition Book.

We also reproduce a page from the requisition book, the stub being shown to the left. For fear the mission of the book might be forgotten or misconstrued the front cover bears a slip to the following effect:

> USE THIS FREQUENTLY TO SEND ORDERS TO
>
> .....
>
> EITHER FOR GOODS FOR THE COMPANY OR FOR EMPLOYEES.

This will be recognized as an ingenious method of going after business, but it is doubtful if many manufacturers will avail themselves of the opportunity of ordering goods in this way either for themselves or for their employees.

Date.....

Amount $.....

Ordered for.....

.....

.....

Chicago, Ill. Date.....

Gentlemen:—

Attached is an order for goods amounting to $..... selected from your catalogue. Please ship to

Name.....

Local Address.....

Town..... State.....

Kindly charge this order to our account.

Yours very truly,

.....

By.....

A Page (Reduced) from the Requisition Book.

Texas Hardware Jobbers' Association.

THE fourteenth annual meeting of the Texas Hardware Jobbers' Association will be held in Houston on April 19, 20 and 21. The members are particularly desirous that manufacturers of Hardware should be represented at this meeting. It is suggested that Texas is so far from industrial centers that manufacturers do not realize the conditions that prevail in that State, and it is frequently the case that the policy or selling plan of a great many makers does not suit the conditions prevailing in that great section of the country. It is stated that manufacturers who have visited Texas have been enabled to adjust their methods, so far as the State is concerned, in a way to benefit both the jobbers and themselves, and it is believed that no manufacturer has ever attended a meeting of the Texas Jobbers' Association without having profited thereby, to say nothing of the satisfaction that it gives the merchants to entertain and meet on their own ground those from whom they purchase.

THE EMERY WATERHOUSE COMPANY, Portland, Maine, gave an enjoyable dinner to its traveling salesmen and house employees, January 21, at Riverton Park, near Portland. While there was no set programme, some informal entertainment was provided, and W. Chamberlain, treasurer and manager of the business, addressed a few kindly words of appreciation to those present, which were warmly responded to by representatives of both the inside and outside force.

THE JOHN A. GREGG COMPANY, Burlington, Iowa, factory sales agent, is sending out its annual booklet naming the manufacturers for whom it acts as sales agent in the Middle West and the goods which they make. The book also contains blank pages for quotations or other memoranda.

OLD GUARD SOUTHERN HARDWARE SALESMEN.

THE Association of Old Guard Southern Hardware Salesmen, established provisionally at Hot Springs, Ark., during the joint conventions of the American Hardware Manufacturers' Association and Southern Hardware Jobbers' Association last June, has perfected its organization. The preliminary work with the names of officials and committees were duly reported in these columns. At that time committees were appointed to draft a constitution and by-laws, with instructions to report at the November conventions in Memphis. This movement has grown out of a somewhat similar association of salesmen traveling in Southern territory, but which was general in scope, there being no restriction as to kinds of goods sold. Some of the salesmen belonging to the older association have withdrawn from it to join the new organization, membership in which is restricted to Hardware and allied trades.

The Object of This Association

is to promote good fellowship, further the interests of its members and cultivate that friendly feeling which properly exists among the traveling fraternity. It is the purpose of the participants to assist in elevating the standard on which business is transacted, and so make the relations between buyers and sellers and competing salesmen as pleasant and harmonious as possible, and they are certain that result will be attained through organization.

The initiation fee has been fixed at $5 and the annual dues at $2. When a member dies a memorial limited to $100 is provided for at the option of the president, which will be obtained by assessment as required.

Features of the Constitution and By-Laws.

The constitution and by-laws were reported and adopted at the Memphis meeting. Some of the features provide that the home office shall be at the residence of the secretary-treasurer; that an Executive Committee of six members shall have general charge of the affairs and funds of the association and that four members will constitute a quorum. The annual meeting is to occur on Tuesday of the week of the annual meeting of the Southern Hardware Jobbers' Association, and in the same place. The Executive Committee is chosen annually by ballot. Special meetings may be called by the president on request in writing of at least 10 members, the request specifying the purpose for which the meeting is called, no business other than that stated in the request being transacted at such meeting. A majority of the members of the association in attendance at one of the Southern Hardware Jobbers' Association's conventions shall constitute a quorum, provided there are not less than 15 members present.

Membership.

The membership shall consist of salesmen and traveling sales managers who have sold Hardware and related lines to the Hardware jobbing trade in three or more Southern and Southwestern States for 10 or more years, a unanimous vote of the Membership Committee being necessary to elect a member. The original intention was to make 15 years' selling experience the minimum period in determining eligibility to membership, but eventually the time was reduced to 10 years. The charter members of the association are as follows:

R. N. Barber, Smith & Hemenway Company.
H. H. Beers, Beers & Mitchell.
Irby Bennett, Winchester Repeating Arms Company.
Frank Bernet, Bromwell Mfg. Company.
S. P. Bispham, Russell & Erwin Mfg. Company.
R. B. Boyd, Chas. H. Graham.
E. H. Brittan, Kelley Axe Mfg. Company.
P. C. Cauthorn, W. W. Crandall & Co.
H. P. Chenoweth, H. P. Chenoweth.
W. A. Chenoweth, W. A. Chenoweth.
W. W. Crandall, W. W. Crandall & Co.
H. A. Dean, Towers & Sullivan Mfg. Company.
C. F. Forsyth, Meriden Cutlery Company.
T. S. Gossett, Peck, Stow & Wilcox Company.
Frank Guildener, Sargent & Co.
J. H. Grubb, Hussey, Binns & Co.
D. P. Hale, D. P. Hale.
Geo. L. Harper, National Enameling & Stamping Company.
Geo. L. Havens, P. & F. Corbin.
John Hisgen, National Enameling & Stamping Company.
John Hoen, Henry Keidel & Co.
Joseph Hottel, Carver File Company.
Fred. M. Huggins, Keating & Huggins.
Arthur S. Jones, A. S. Jones.
J. H. Keating, Keating & Huggins.
O. C. Mead, Mead & Smith.
Guy Mitchell, Beers & Mitchell.
L. P. New, Geo. K. Tryon & Co.
E. J. Newey, Alfred Field & Co.
G. B. Nichols, Landers, Frary & Clark.
Frank S. Querbacher, O. K. Stove & Range Company.
J. B. Parrent, Chicago Hardware Company.
Jas. Powell, Corbin Cabinet Lock Company.
J. T. Rader, Miller Lock Company.
H. Rashcoe, Nixdorff-Krein Mfg. Company.
J. S. Sanders, M. C. Hartley Company.
F. S. Seeley, Wiebusch & Hilger.
A. R. Sisson, Russell & Erwin Mfg. Company.
D. K. Stucki, D. K. Stucki.
W. P. Smith, Mead & Smith.
W. H. Taylor, Pittsburgh Steel Company.
C. H. Wier, Wier & Wilson.
F. P. Willis, Yale & Towne Mfg. Company.
C. P. Wilson, C. P. Wilson.
John K. Wilson, Wier & Wilson.
C. K. Woodburn, R. E. Dietz Company.

FRED. M. HUGGINS,
Secretary-Treasurer.

OMAR C. MEAD,
Second Vice-President.

HENRY H. BEERS,
President.

C. F. FORSYTH,
First Vice-President.

OFFICERS OF THE OLD GUARD SOUTHERN HARDWARE SALESMEN.

Officers and Executive Committee.

The officers now in charge of the association, all of whom are well and favorably known in the trade and are representative of its best traditions, are as follows:

PRESIDENT, H. H. Beers.
FIRST VICE-PRESIDENT, C. F. Forsyth.
SECOND VICE-PRESIDENT, O. C. Mead.
SECRETARY-TREASURER, Fred. M. Huggins.

Mr. Huggins is credited by his associates with having originated and cultivated the interest in the movement necessary to bring about the organization.

The Executive Committee consists of W. A. Chenoweth, chairman; T. S. Gossett, P. C. Cauthorn, John K. Wilson, D. K. Stucki and F. S. Seeley. The emblem of membership worn by those belonging to the association is a gold button, which is reproduced herewith.

House Committee Rejects Rural Parcel Post Project.

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, D. C., January 26, 1909.

THE opponents of a domestic merchandise post have won the first battle in the 1909 campaign. The annual post office appropriation bill has been reported to the House free and clear of all objectionable measures, the committee having rejected not only the rural parcel post project, but the proposition to appropriate "a few hundred thousand dollars" to make an experiment to test the merits of the scheme.

The new bill carries the largest appropriation for the rural free delivery service authorized since this institution was established in 1897, the total amount being $37,360,000, as compared with $35,873,000 for the current year, an increase of $1,487,000. The appropriation for last year was $34,900,000, the increase in the allotment for the current year being less than $1,000,000, as compared with approximately $1,500,000 for the coming year.

Current Rate of Expansion of Rural Free Delivery Service Is Moderate.

Regarding the appropriation for rural free delivery, it is only fair to say, however, that during the past two years the annual increase has been relatively small, and as long as the present policy of conservative extension is adhered to the retail merchants of the country will have no fault to find. Comparison with the earlier years in the history of this extraordinary service indicates that the current rate of expansion is very moderate, although the total annual appropriation has reached enormous proportions. The allotment for this service first passed the $1,000,000 mark in 1901, when the appropriation was $1,750,796, but the following year it jumped to $4,089,075 and in 1903 it more than doubled, rising to $8,580,364. In 1904 the total expenditure was $12,926,905, but in 1905 the largest increase in the history of the service was recorded, the appropriation rising to $21,116,600. In 1906 the allotment was $25,828,300, and in 1907 it was $28,350,000. In 1908 an increase in the rate of compensation of carriers resulted in swelling the appropriation to $34,900,000 without a proportionate increase in the number of routes.

From these figures it will appear that the increase in the expenditures during the past two years has been less than the gain in any one year since the cost of the service first exceeded $1,000,000. The reason for the decrease in the annual gain is that the department has already installed routes in nearly every section where the population is sufficient to provide a minimum of 100 families per 25 miles of route. The current appropriations are being used chiefly for the purpose of completing the service within those counties in which a number of routes have already been established, the plan being to consolidate short routes and rearrange schedules so as to serve practically every family in the county.

Present Fiscal Year Will Probably Show Deficit Exceeding $25,000,000.

Another colossal deficit in the postal revenues far exceeding that for the last fiscal year is foreshadowed in a report which has just been rendered to the Postmaster-General by the auditor for the department. A new system of double entry bookkeeping having been installed, it is now practicable for the first time in the history of the service to determine the deficit by fiscal quarters, and thus it has been learned that the expenditures for the three months, July, August and September, 1908, were $9,309,106 in excess of the receipts. A disproportionately large part of the year's deficit usually accrues during the first quarter, the shortage for the corresponding period a year ago having amounted to $6,876,926, while the deficit for the year was approximately $17,000,000. The shortage for the first quarter of the current fiscal year, therefore, foreshadows a total deficit of more than $25,000,000 on July 1, next, or at least $8,000,000 more than last year. This tremendous gap between receipts and expenditures is certainly big enough to warrant the shelving of all parcel post schemes for years to come, but, in view of the extraordinary logic employed by the Postmaster-General in urging the department's rural service projects, it would appear that the bigger the deficit the stronger the reasons for embarking upon a sea of experimental legislation.

The Details of the Auditor's Statement

are of special interest in view of the size of the prospective deficit. The total revenues for the first quarter of the current year were $46,202,000, while the expenditures were $55,511,000. The percentage of increase of receipts was 3.86 and of expenditures 8.08 per cent. The principal item of increase in receipts was the sale of postage stamps and stamped paper, amounting to $1,535,628. The principal items of increase in expenditures were as follows: Compensation to postmasters, $208,853.30; compensation to assistant postmasters and clerks in post offices, $991,209.19; city delivery service, $892,367.96; railway mail service, $262,651.93; rural delivery service, $574,667.50; railroad mail transportation, $435,380.01, and the manufacture of stamped envelopes, $267,684.92, or a grand total of $3,632,814.81.

Protests Against Postal Notes.

It is the present expectation of the members of the House Post Office Committee to report and take up for consideration the bill to codify the postal laws, to which the postal note project has been added, immediately after the passage of the pending annual appropriation bill. The committee continues to receive large numbers of protests against the postal note feature, and it is among the possibilities that, in finally revising the bill for the purpose of reporting it to the House, this provision will be dropped out. Much will depend, however, upon the activity of the retail merchants of the country in forwarding their remonstrances during the next week or 10 days.

Advantages of Postal Notes to Mail Order Houses.

An exceedingly forceful presentation of the injury to retail merchants that would result from the passage of the postal note provision is set forth in a supplemental letter which the committee has received from the chairman of the Legislative Committee of the National Association of Retail Druggists. The advantages that would be gained by the mail order houses are specifically pointed out in very effective fashion as follows:

> It has long been one of the most serious problems to which the managers of these monopolistic concerns have addressed themselves to find a practicable method of inducing the residents of rural communities and even of the cities to forward small sums of money ranging from a few cents to $1. The money order fee, amounting as it does to 6 per cent. of a 50-cent remittance and 12 per cent. of a 25-cent remittance, has operated to induce buyers to spend these small sums at home and thus to help build up the communities in which they reside. It is a well-known fact that staple lines of bulky merchandise are sold so close to cost as to afford little or no profit to the small retailer who depends for his living upon a large number of very small sales of specialties, upon each of which his profit, though but a few cents, is a respectable percentage on the cost.
>
> In the retail drug trade, in particular, the average sale is less than 25 cents, and more than 95 per cent. of the sales are less than $1. The mail order houses have used extraordinary efforts to secure this particular class of business and have made considerable inroads on it. The authorization of a cheap postal note with a fee of but 1 cent for remittance up to 40 cents and of but 2 cents for remittances not exceeding $2.50, would prove of enormous advantage to these catalogue houses and would put thousands of retail druggists out of business. Its effect in other lines would be almost, if not quite, as disastrous.
>
> If there were any *bona fide* demand or necessity for these proposed postal notes in the public interest I could not conscientiously urge these objections, but knowing, as we do, not only that there is no real demand but that the apparent demand has been systematically worked up by interested literary bureaus and that the sole beneficiaries of the project would be a dozen gigantic concerns endeavoring to concentrate the retail merchandizing of the country in two or three large cities, I feel that it is my imperative duty to protest against this proposed legislation not only in the interest of the organization I represent but on behalf of retailers in all lines and of the tens of thousands of small communities which these centralizing tendencies threaten to destroy.

Every reader of *The Iron Age* familiar with retail merchandizing will appreciate the advantages that would accrue to the catalogue concerns from a postal innovation that would enable them to gather in hundreds of thousands of small remittances at from one-third to two-thirds of the present money order fees.

Bolt Manufacturers Dine.

MANY leading representatives of the Bolt, Nut and Rivet manufacturing industry held a banquet at the Waldorf-Astoria, New York, January 19. About 55 were present. James Lord, American Iron & Steel Mfg. Company, Lebanon, Pa., presided, and W. F. McKenzie, Upson Nut Company, Cleveland, acted as toastmaster, introducing as speakers of the evening John A. Topping, president of the Republic Iron & Steel Company; Col. H. P. Bope, general sales agent of the Carnegie Steel Company, and S. P. Ker, general sales agent of the Republic Iron & Steel Company. Several others present were called upon for informal remarks. In the course of the evening S. Bourne, Bourne & Knowles Mfg. Company, Cleveland, on behalf of the manufacturers, presented Mr. Lord with a handsome loving cup, suitably engraved as a token of appreciation of his efforts in promoting their mutual interests. The occasion was a most delightful one, being marked by evidences of a friendly and kindly feeling among competing manufacturers, the cultivation of which is regarded as one of the most beneficial results of the frequent conferences which have been held during the past few years. Another feature of note was the hopeful view which those present were disposed to take of the business situation, despite the fact that present activity is not, perhaps, as great as has been hoped for by some. The belief was generally expressed that when the tariff agitation is settled and the new administration seated, a steady healthful improvement may be expected.

W. H. Stepanek's Methods of Conducting a Hardware Business.

W. H. STEPANEK of the Stepanek & Vondracek Hardware Company, Cedar Rapids, Iowa, has published a book describing the bookkeeping system and some other methods of doing business employed in that store. The system is illustrated by reproducing many blanks and pages from books filled out as in actual use, including sales slips, sales book, charge book, cash book and journal, collected records, summaries, reports, &c. Suggestions are also made for dividing the business into departments, keeping track of returned goods, expense reports, &c., and pricing shop work. Part two refers to the system followed in selling goods on the installment plan and treats of the arrangement of the attractive Stepanek store, which is shown by numerous illustrations.

THE TEXAS CONVENTION.

Those brought together in the Dallas meeting of the RETAIL DEALERS' HARDWARE AND IMPLEMENT ASSOCIATION OF TEXAS, which adjourned on Thursday afternoon, were enthusiastic in their references to the gathering as the most successful in the history of the organization. This success is to be credited to the large attendance, the excellent programme, the practical character and value of the discussions, and the good work accomplished. The cordial welcome extended by the merchants and manufacturers of Dallas contributed also not a little to the pleasure and usefulness of the convention.

The Attendance.

The attendance of the members at this convention was the largest in the history of the organization, a fact which contributed much to the success of the meeting, as did also the business character of the gathering and the excellent attention given to association work. At the open meetings the capacity of the Auditorium was taxed to its utmost. At the executive sessions also the attendance was large, and close attention was given to the subjects under consideration, with many evidences of the interest taken in them and of the appreciation by the members of their practical value.

The Work of the Convention.

Striking evidence of the interest and success of the Dallas meeting is afforded in the fact that it was necessary to hold an additional session beyond those provided for in the programme. It was originally intended that the convention should adjourn Thursday noon, but so much interesting matter and so much important business called for attention that it was found necessary to hold an afternoon session. This was accordingly done and the work of the association was concluded in admirable shape when adjournment was had at half past five on that day.

Implement and Vehicle Manufacturers.

Realizing that as Implements have an important place in the business of the members of the association, it was to be expected that organizations and manufacturers identified with this line should be represented in its councils. E. W. McCullough of Chicago, an official representative of the National Implement and Vehicle Manufacturers' Association, who was very pleasantly known to many of the members, was in attendance and delivered an address upon the opening day. The courtesies of the Dallas Implement, Machinery and Vehicle Club were extended through J. M. Wendelken, its president. D. M. Parry of the Parry Mfg. Company, Indianapolis, Ind., an ex-president of the National Manufacturers' Association, was an honored guest and made an able address at the opening session. A number of manufacturers also had exhibits in various parts of the city, which received due attention from the delegates.

Relations with the Hardware Jobbers.

The interest of the jobbers of Texas in the meeting of the association was evidenced by the presence of many representatives, official and otherwise. Among these were Charles E. Nash, president of the Jobbers' Association; R. F. Bell, its secretary; E. A. Peden of the Peden Iron & Steel Company, Houston; F. A. Heitmann of F. W. Heitmann & Co., Houston, and W. L. Sanford of Roberts, Sanford & Taylor Company, Sherman. James Moroney of the Moroney Hardware Company of Dallas, and the venerable R. E. Bell of R. E. Bell & Co., Weatherford, were also in attendance. Some conferences were held between the representatives of the wholesale and retail trade with a view to considering matters in which they have mutual interest and securing complete harmony in their relations. The Conference Committee was constituted as follows: D. K. Cason, Nacogdoches; S. Silliman, Palestine; W. L. Halez, Alvin; W. H. Richardson, Austin; Morgan Weaver, Abilene; A. L. Bracht, Rockport; Joe E. Johnston, Dallas; H. J. Heze, Halletsville, and H. P. Schaefer, Schulenburg.

Parcel Post.

The subject of parcel post was ably discussed by R. W. Shapleigh of the Norvell-Shapleigh Hardware Company, St. Louis, whose admirable paper is given on another page. The convention seemed to be entirely unan-

imous in its opposition to the project of the Post Office Department greatly to extend the delivery of merchandise through the mails. It was recognized that this would militate seriously against the merchants of Texas, as it would make easy the buying of goods from the catalogue houses and department stores of Chicago, St. Louis, New York and other large cities. *The Iron Age* reprints of articles on this subject were referred to as a valuable compendium of facts and arguments which had been the means of not only informing the trade, but of stimulating active efforts to prevent the enactment of parcel post legislation.

Greetings from Hardware Associations.

A very pleasant feature of the first day's session was the receipt of a telegram from F. A. Bare, secretary of the Ohio Hardware Association, tendering congratulations and good wishes. The New York State Retail Hardware Association was represented in person by R. R. Williams, who, as a duly accredited delegate, presented a letter of fraternal greeting from John Holley Bradish, its president, with an invitation to the members of the Texas Association to attend the meeting of the New York Association, which is to be held at Rochester, February 16 to 19. These courtesies were much appreciated by the convention and an appropriate response was made. The privileges of the association were extended to Mr. Williams, who participated in its deliberations throughout and was called upon to address the convention at its opening session and also on the last day.

Local Associations.

In the progress of the discussions it became evident in one way or another that throughout Texas there are an unusual number of local associations in which all the merchants engaged in the different lines of business are brought together for the protection and promotion of their mutual interests. Some of these associations have done efficient work in memorializing their representatives at Washington against the parcel post project and are also evidently making themselves of practical usefulness especially in the matter of credits.

The Hospitality of Dallas.

A very cordial reception was given the association by the merchants of Dallas and by the representatives of the manufacturers in that city. Beside individual courtesies extended to the members, a banquet and entertainment was given them at the Columbia Club on Wednesday evening. This was an exceedingly enjoyable and creditable function. A number of the delegates in attendance at the convention were accompanied by their wives, who were very handsomely entertained by the ladies of Dallas with automobile rides, theater parties and other hospitable attractions. Dallas certainly made a most pleasant impression on all in attendance, whether members or guests, not only as a fine city, rapidly advancing and sure to be increasingly important as a business center, but on account of the cordial hospitality of its enterprising and progressive merchants and manufacturers.

Time and Place of Next Meeting.

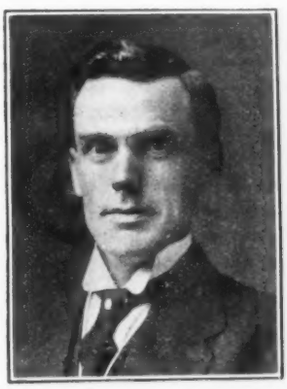
Dallas is the usual meeting place of the association, but a suggestion was made that there might be some advantage in meeting at a more central point to facilitate the attendance of merchants in other portions of the State. There was also some consideration given to the question as to whether it would be advisable to hold the meeting at a later date, for example, in the early part of March, or even in October when many merchants are in attendance at the fair. January was referred to by some as an especially busy month, some of the members having left their stores at considerable inconvenience. The possibility that the Jobbers' Association might arrange to meet at the same time and place was mentioned, and the point was made that there might be advantages in such simultaneous conventions.

Election of Officers.

At the opening session of the convention the following Nominating Committee was appointed: R. L. Penick, chairman; G. H. Collins and Mr. Moran. In accordance with their report, presented on the last day of the convention, the following officers were unanimously chosen for the ensuing year:

PRESIDENT, D. K. Cason, Nacogdoches.
VICE-PRESIDENT, T. H. Shive, Vernon.
DIRECTORS: S. J. Kennedy, Gainesville; J. E. Johnston, Dallas; John O. Turner, Hillsboro; G. H. Collins, Greenville; W. T. Herrick, Whitney, and Morgan Weaver, Abilene.

The administration of President O. E. Schow of Clifton was notably successful, and he was frequently referred to in conversation among the members as an eminently efficient president. Much of his time was evidently given to the work of the association in recognition of



D. K. CASON.

O. E. SCHOW.

the obligation to discharge to the best of his ability the duties of the office. All this was appreciated by the members and made manifest in many ways. As a presiding officer he was prompt and authoritative and held the association to its work with decision and yet always with courtesy.

To J. W. McManus of Dallas, secretary of the association, is to be credited in large measure the active efforts for the increase of the membership, as well as the making of preparations for the meeting, a matter which involved much labor and a painstaking attention to many details. His report was of exceptional interest, and a vote of thanks was tendered him. His efforts as secretary in securing new members, as well as his co-operation in carrying out the plans of the association, contributed much to the position attained by the organization in which the members take so much satisfaction.

The new president, D. K. Cason of Nacogdoches, was an active and influential participant in the discussions of the association and is regarded as admirably fitted for the duties of the office to which he was chosen, and his administration is looked forward to with the expectation that it will witness a further advance in the fortunes and usefulness of the association.

Standing Committees.

D. K. Cason, the new president, announced the following standing committees for the year:

GENERAL ADVISORY—W. H. Richardson, Austin, chairman; H. C. Hughes, Meridian; R. L. Penick, Stamford; W. A. Spangler, Bonham; A. G. McMahan, Whitney.

DISTRIBUTION OF REPORTS—W. A. Spangler, Bonham; W. T. Herrick, Whitney; D. Oliver, Groesbeck.

PRINTING AND ADVERTISING—O. E. Schow, Clifton; Charles B. Smith, Belton; A. L. Smith, Hillsboro; Joe E. Johnston, Dallas.

INSURANCE—O. E. Schow, Clifton; A. L. Smith, Hillsboro; Charles B. Smith, Belton.

FREIGHT—J. R. Adams, Tyler; S. J. Kennedy, Gainesville; W. H. Richardson, Austin.

LEGISLATIVE—W. H. Richardson, Austin; Jess Baker, Austin; Charles Hutchens, San Marcos.

GRIEVANCE—J. E. Johnston, Dallas; John O. Turner, Hillsboro; Emmet Rankin, Arlington.

RULES—Charles F. Weiland, Dallas; A. C. Clay, Moody; A. Hoy, Lewisville.

FARM MACHINERY AND IMPLEMENTS—Morgan Weaver, Abilene; Joseph Masur, Lockhart; J. D. Carroll, Corpus Christi.

MEMBERSHIP—H. W. Taylor, Clarenden; G. H. Collins, Greenville; James G. Blaine, Houston; C. F. Weiland, Dallas; W. B. Hughes, Dallas; C. H. Behrens, Dallas.

FINANCE AND AUDITING—T. H. Jones, Maypearl; J. Desenberg, Mexia; A. L. Smith, Hillsboro.

Cost of Doing Business.

One of the important topics at the convention was the cost of doing business. This subject was ably discussed by E. W. McCullough in his address at the opening session. Referring to the fact that the manufacturers and jobbers have naturally given this matter their most careful attention, he made the point that it is time for the retail distributers also to take the matter into consideration and see to it that they are not underestimating the expense of doing business. The suggestion was made that it would be well for the association to take this matter up in a systematic form, so as to protect the trade as far as possible from the troublesome competition which comes from those who fail to take into account the element of cost in conducting their stores. At a subsequent session the subject was taken up again for a more detailed discussion, when W. P. Peter read a paper on the "Cost of Doing Business," illustrating the matter by figures which were furnished him by delegates relating to the volume of their business, the expense of conducting it and the profit realized. This was a very interesting and suggestive presentation of the matter, making it clear that there is a general tendency on the part of merchants to underestimate the cost of selling, leading them to add an insufficient amount to the actual cost of the goods, the result being that the selling price frequently yields an inadequate profit.

President Schow's Address.

In his annual presidential address Mr. Schow touched on many topics of vital interest to the trade. Relative to parcel post he pointed out the necessity of letting the Texas Senators and Representatives know just how the merchants of the State stand on this question. It was understood that several of the legislators were in favor of parcel post a year ago, and every effort should be made to convince these men that they were imperiling the welfare of retail interests in advocating such measures. He referred to the pleasant relations maintained with the Texas Jobbers' Association. On invitation he had attended the annual meeting of the association in April last and made an address on the interests of retailer and jobber.

He alluded to the receipt of a communication from the Hon. William Brewer, Cleburne, president of the Retail Merchants' Association of Texas, in which he advocated a merger of the two associations. After looking carefully into the matter he was convinced that the proposed combination of interests was not desirable or advantageous and recommended that the Hardware association continue on the lines which had been followed since its formation.

Mr. Schow also touched on the subject of repairs and the desirability of some relief action by the manufacturers. As to the sale of automobiles Mr. Schow expressed his belief that they belonged to the Hardware and Implement line just as much as Wagons and Buggies, but that those who handled them should possess certain qualifications.

In retaliation for the advances in freight rates during the past year, the president advocated the circulation of petitions in all parts of the State vigorously upholding the recommendation of Governor Campbell to reduce the passenger rate in Texas from 3 to 2 cents per mile.

Mr. Schow expressed his disapproval of the proposition to enlarge the territory covered by the Texas Association, and, perhaps, changing its name, and advanced his reasons therefor. Instead, he recommended that the by-laws be amended so as to permit the association to accept the membership of Hardware houses in any State or Territory of the United States, and that the by-laws of the Insurance Exchange be changed so as to accept business from Hardware merchants in any State or Territory. He also touched on the subject of legislation and warmly eulogized the work of Secretary McManus.

The Freight Question.

One of the most engrossing topics before the convention was the matter of freights, and especially the high rates which are charged upon interstate shipments. This subject was formally discussed by Hon. O. B. Colquitt, who made an extended address on Wednesday afternoon on "The Freight Proposition in Texas." This was listened to with the closest attention at one of the largest gatherings of the convention. The freight question was also forcibly discussed by W. L. Sanford of Sherman, whose paper was one of the most striking features of the meeting on Wednesday afternoon. In this discussion it was made plain that the subject of freights in Texas is one of peculiar complexity and difficulty. The subject came officially before the convention in the following report of James R. Adams of Tyler, chairman of the Freight Committee:

The purpose of our association is not to find fault with railroad companies, nor is it the purpose of your committee to criticise the managers of such companies; we are not merely fault finders, desiring to regulate or dominate the business of some one else. But the question of freight rates enters directly into the problem of success of our business. It is an important item which requires our constant investigation and our constant effort to hold these rates within reasonable bounds. The tendency of railroads and transportation companies is a menace to the development of Texas and a handicap upon the investment of capital in this State. The constant cry of the railroads has been and is the immigration of people, and the bringing of capital in to Texas to develop her limitless resources. They should learn that exorbitant, and in many instances prohibitive transportation charges, are the best and most effective means for retarding and preventing such development. We need not only people in Texas, but commercial and industrial enterprises; and the latter we will never have as long as they are subject to unreasonable or discriminatory freight rates. Texas has prospered wonderfully, but in my judgment this prosperity has been, to a large extent, in spite of enormous freight charges paid by our people and commercial institutions, both on the products which we send out of the State as well as on those which we bring into the State. The Dallas *News* of June 20, 1908, announced that the railroads had

Advanced Freight Rates

of 5 and 10 cents per hundred in carload lots, effective August 5. As the rates already in force in Texas were 6 per cent. higher than in the States east of the Mississippi River, and as the announcement was made in the midst of a general financial stringency, when the prices in all other lines of business were at the minimum, the announcement was received not only with regret, but alarm by the people and by those engaged in our lines. We immediately got busy to see if this advance could not be prevented, as a result a committee was sent to Washington, but we lost the fight in part, and this was due, in a large measure, to the fact that we were not thoroughly organized. The railroad systems of our country have fallen into the hands of such a few men, and there is such a community of action on their part that we cannot hope to secure either cheaper rates or quicker and better service, except by the most *complete organization and concert of action*. S. H. Cowan, has very aptly expressed the situation as follows: "The real interests of the railroads and the public are identical in the end, save and except temporary money getting, where they are opposite. The wise railroad policy would be to satisfy themselves with a fair interest on the investment; the real policy appears to be to get all they can and kick because the public will not let them get more."

Comparative Freight Rates.

The gross earnings on the principal lines in Texas have run from $9000 to $10,000 per mile; this is a way above the average of the lines in other parts of the United States. Space forbids that I submit figures in detail, but I submit a few comparisons: The distance from Buffalo to St. Louis is 916 miles, the rate is 22 cents; the distance from St. Louis to Tyler is 570 miles; while the rate, on the same class of goods is 63 cents. From Chicago to New Orleans, 940 miles, the rate is 33 cents; from New Orleans to Tyler 420 miles, rate, 46 cents, on same class. The rate on Axes from Pittsburgh to St. Louis, 621 miles, is 27½ cents; while the rate from St. Louis to Tyler, 570 miles is 86 cents. Stoves, Pittsburgh to St. Louis, 621 miles, rate 24½ cents; St. Louis to Tyler, 570 miles, rate 79 cents. The rate on implements and wagons from Indianapolis to St. Louis, 340 miles, is 14½ cents; while from St. Louis to Tyler, 570 miles, the rate is 30 cents. Sugar and molasses from New Orleans to St. Louis, 726 miles, rate 17 cents; from New Orleans to Dallas, 525 miles, rate 46 cents. The rates on less than carload lots, east and west of the Mississippi River, show a still greater discrepancy. I might continue to make comparisons, all of which would serve to show that Texas is getting the worst of the deal. All we want is

A Fair Deal

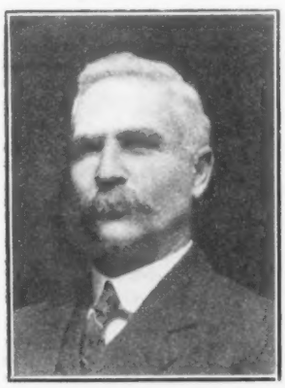
and we should never be satisfied with less. Roads can be built in Texas as cheap, and in many instances cheaper, than in other States, and the cost of operation certainly cannot account for the higher rate which we pay. The truth is we

are paying rates both locally and interstate that are unreasonable and exorbitant. There can be no greater factor in the development of a State than railroads; in fact, they are essential to progress and development. And this very fact of their essentiality makes the unjust burden imposed by them the greater. We do not believe in handicapping progress by severe or drastic legislation; on the other hand, neither the power of the State to decree equal justice nor the demand of the people for their rights should be silenced either by sophistical eloquence nor threats, withholding from our State the capital necessary to her proper development.

REPORT OF SECRETARY McMANUS.

The fifth annual report of J. W. McManus, Dallas, the energetic secretary of the association, was an interesting recital of some features of the work of the past year, many of the benefits secured through organization being thus brought forward and emphasized. Mr. McManus' report was in part as follows:

The long continued business depression has had one salutary effect, at least; it has opened the eyes of many dealers to their need of our association, which they might have been slow to realize under the sunny skies of prosperity. Their addition to our ranks is a special reason for congratulation at this time, when we have such important—yea, such life and death problems to solve, requiring a strong and united organization. This cheering fact should not, however, cause us to relax our efforts at increasing our membership during the year which has just opened. We should be glad to know that every man belonging to the association regarded himself as a membership committee of one, self-delegated to rouse the indifferent dealers of his acquaintance to the financial foolishness of their position, and the necessity of their getting in line with us in the interest of their own business. We have such members, we are very glad to say, and take this occasion of expressing our warm appreciation of their efforts in this direction.



J. W. McMANUS.

Trade Papers.

Closely linked with the matter of membership is that of trade papers. In nine cases out of 10, the dealer who thinks he can run his business well enough without the aid of our association, and that $5 for membership fee and dues would simple be money out of pocket to him is a man who does not read the trade papers. It is very natural to underestimate that of which we are ignorant. Let a dealer take even one of the trade magazines, reading it faithfully, and having all his employees read it, that they may become enlightened also, and he cannot but see and realize that the ranks of the association are the ranks of progress all along the line. It is astonishing on the face of it that any business man should be skeptical as to the value of organization. In the commercial world of to-day the individual does not count as an individual, but as a part of some organization. No man thinks of starting out in the banking business, for instance, without applying for membership in the Bankers' Association, and no man should think of starting out in the Hardware, Implement or Vehicle business in Texas without knocking at the door of this association for admittance.

A dealer of necessity stays pretty closely at home, and if he does not read at least one trade publication he cannot keep up with the times. This is an age of rapid progress and the most successful merchant is the most up-to-date one. Every dealer owes it to his own pocketbook to be thoroughly educated along his line of business, and the trade paper is his text book. It is a fine investment, too. Did you ever pause to consider that it costs you practically nothing in comparison with the benefit you get from it?

Important Legislation.

Our Legislative Committee will have several important matters to lay before the Legislature this winter, but the paramount issue will be the peddler proposition. We are determined, if possible, to get such a bill pushed through this session as will put a stop to the depredations of these commercial pirates who pay no taxes and fatten by diverting to themselves the trade that should belong to the taxpaying dealers. Sufficient care must be taken in framing it so that it will not conflict with any interstate commerce law and so be inefficient after it is passed. When we consider the *personnel* of our Legislative Committee, however, we are relieved from all anxiety on that score.

Show Your Colors.

I regret that the idea of an association emblem has not awakened more interest among you who are members. Every dealer who belongs to our organization ought to have some means of announcing this fact on his letterhead. Just the simple words: "Member of the Retail Dealers' Hardware and Implement Association of Texas" would be productive of beneficial results. Perhaps you have not thought of it in this light, but I believe a little reflection will convince you of the truth of my statement. Such an announcement would show that you were proud of your association, and the jobbers and manufacturers receiving your communications would insensibly feel more respect for you because of this pride, and more respect for an organization capable of inspiring it. Again, to be thus constantly reminded of your membership would make you more alive to all that it involves of privilege and responsibility, and so keep the fire of enthusiasm from cooling. It is very easy to be good association members here in the convention hall, with the inspiration of congenial fellowship and rousing discussions; but human nature is weak, and good resolves need constant stimulation.

Local Clubs.

I have been very much gratified to hear from time to time of the establishment of local clubs among the retailers. These strengthen the backbone of our State association, and I hope their number will be multiplied many times during 1909. They tend more than anything else to break down that foolish barrier of indifference which too often exists between dealers in the same locality. It ought to be customary for competitors to be on intimate terms with each other, and talk over together matters relating to their common interest. You do not strengthen your business by keeping away from your competitor; you weaken it. Not only do local clubs promote a better understanding among the dealers, but they promote a better realization of what the association is doing for the interests of the trade, and keep prominently before them the duty of their supporting it as much as possible. They are helpful in matters of credits, collections, co-operative buying and reduction of operating expenses.

Parcel Post.

During the past 12 months we have been making strenuous efforts at heading off the proposed Parcel Post measure. Realizing that this plan is a weapon aimed at the very life of the dealer as a dealer, we have sent out thousands of letters to both members and non-members, urging them to keep on the alert, as the enemy would be sure to show its head again at this winter's session of Congress. Judging from the number of strong petitions which have been forwarded to our representatives at Washington of late, I believe the dealers of Texas are thoroughly aroused to the danger of this measure, which its advocates surround with such a halo of plausibility. The outlook is more encouraging now on account of the change in the Cabinet at Washington, but for all that we cannot afford to relax our vigilance until we see the question settled in the right way.

Retailing Goods at State Fairs.

As a result of persistent efforts to this end on the part of this and other associations through the National Federation, the Carriage Manufacturers' Association of America recently went on record as protesting against the sale of samples at fairs by their members. Such news as this ought to convince every disheartened dealer that when the retailers get together and pull together as one man, something is bound to give. As an individual you may be weak, but as one link in a long chain of individuals you are powerful.

After the adoption of this resolution by the Carriage Manufacturers' Association, it was hoped that the practice of retailing vehicles at our State fair would stop, and it has done so to a certain extent, in a direct way, but indirectly it has not, with some. It is now managed thus: If a consumer looks through an exhibit, wanting a job for his own use, a strong effort is made to sell him under the pretense that this exhibit belongs to So and So, who are local dealers in Dallas. The outcome of this practice is that several carloads of vehicles are unloaded every year during our fair, and a great many of these jobs are sold and shipped all over the State, direct to users—customers of the regular dealer. Understand, we don't accuse all vehicle exhibitors of this practice; a number of them are loyal to the principle of protection to the dealer in his territory. The retailers of Texas are rapidly learning who are their friends among the manufacturers and jobbers, and the latter can count upon their loyalty.

Association Solicitors.

While our solicitors report a great deal of enthusiasm among the dealers along association lines, it sometimes happens that one will put them off with the excuse that he is too busy to talk with them. This is a grave mistake and arises from the fact that such men do not realize that in many respects these solicitors are their best friends. Not only do they bring to the ill-informed ones the good news that this association stands ready to help them out of their business difficulties but they actually anticipate the dealer in many instances in bringing to light these difficulties.

Usually our men will inquire of a dealer if jobbers or manufacturers ever sell direct to consumers in his territory, and sometimes a dealer will innocently reply that there is no such trouble in that locality. Later our man learns from the railroad agent there that shipments are being made to consumers, and will even see such goods lying at the station billed direct to the user.

The work of our traveling men is of broad scope, and this scope grows broader continually as they confront additional problems with which they see it is their duty to deal. If all they did was merely to travel about the country soliciting members for our association, they would be doing a great deal in behalf of the retailer, because the latter is 100 per cent. better off as a member than as a nonmember: but this is only a small portion of their work. In view of these facts, let no dealer ever be too busy to talk with them.

Traveling Men Living Up to Their Resolution.

All will remember the resolution adopted by the traveling men at our last meeting, by which they pledged themselves to use their influence in behalf of the association. I take occasion to say right here that this influence has been felt in many ways and has been to your secretary one of the cheering features of the past year. Not only have I received letters directly from these men, enclosing applications for membership which they had secured from dealers they visited, but in many indirect ways I have been kept aware of the fact that they were speaking a good word for this organization right and left. The traveling men realize that their interests are inseparably bound up with ours. We greatly appreciate the help they have been giving us.

An Illustration of Co-operation.

This leads to the subject of co-operation in general. One of the greatest obstacles to progress in every age has been the inability of different classes to see that the interest of one was the interest of all. This blindness has produced antagonism in many instances and mere indifference in others, as the pages of history sadly testify. People are everywhere getting their eyes open now to the fact that the only way for everybody to succeed is to link hands with each other. Selfishness breeds disaster. The man who shuts himself up in his own little shell and is concerned only with what immediately surrounds him is continually shutting out the very persons who would be glad to help him on the road to success.

In connection with this subject I wish to relate the following incident. Shortly after our convention last year a Dallas jobber told me that while he had always appreciated the work of the association, a particular circumstance during that meeting opened his eyes to its value as nothing had ever done before. At that time three dealers entered his office in company, one of them being a customer of the house, who introduced the others. In the conversation that ensued, he learned that all three were from the same town and were here attending the convention and looking over the different stocks of goods together.

"What!" said the jobber, "all three of you from the same town, and buying goods together?"

"Yes," they replied, "and we go further than that; we load cars together. The time was when we wouldn't speak to each other, but the association showed us the folly of each fellow's just paddling his own canoe and refusing to give the other fellow a lift. We only wonder that it hadn't occurred to us long ago that it was to our mutual interest to join hands in this way."

I told this jobber that such things were getting to be common occurrences since we put men in the field to show the dealers the advantages of co-operation and of being in the very closest touch with each other at all times.

Relations with Jobbers and Manufacturers.

While we would like to see every dealer in Texas a member of our association we should also like to see every jobber a member of some jobbers' association. It is to our own interest that this should be so, for the matters at issue between the wholesalers and the retailers can be dealt with by them to better advantage through conference committees of the several organizations. It has been our constant aim to bring about closer relations between our association and those of the jobbers to pave the way for a more complete settlement of our differences. In the same manner we aim to keep in close touch with the manufacturers. We always have representatives of the different associations at our conventions, who come not merely to address our people, but to take up with us any matters that need adjustment. In what other way could we hope to put a stop to manufacturers selling to catalogue houses, for instance, than by laying the question before their representatives, and by such conference bringing about their assurance that such sales will be discontinued? It is the same with other matters. It often happens that one commercial class will pursue methods detrimental to another class without realizing the fact; yet when the subject is brought before them in all its bearings, in a conference of representatives of both sides, they are obliged to view it in a different light, and to admit that they have not been fair to the interests of their brethren in the business world.

Insurance Exchange.

We are very much encouraged by the growth made by our Insurance Exchange during the past year. Our members are realizing more and more the superiority of a system of insurance under which a policy is not only protection, but investment. There are some who have a mistaken idea that they are under such obligations to some local agent who trades with them, and sends them customers that they cannot insure with us. When we find that this consideration is holding them back we point out to them that whatever may be their obligations to these agent friends they cannot do away with their obligations to the association of which they are members, which was created for their benefit, and which has been continually smoothing the commercial road for them. The Exchange is a very important branch of our organization, and the greater its strength the greater the strength of the association as a whole. Why when this matter is put up to the local agents themselves they generally say, without hesitation, that the dealer's first duty is to his association, and thus encourage him to patronize its insurance department. A number of our members are themselves insurance agents who nevertheless support our exchange most loyally.

One fact has particularly impressed us: Among the requests we receive by mail for information there is hardly one that does not mention the exchange. This shows that what awakens the interest of the nonmember who has not been brought in close touch with our work is, in 99 cases out of a 100 our insurance feature. It frequently happens, too, that dealers express to our traveling men a desire to become members just for the sake of enjoying the benefits of the exchange.

Association Achievements.

This is good, as far as it goes, but we wish to prevent the dealers from taking a one-sided view of our organization. It is true that our insurance feature is the only one that pays the members back directly in dollars and cents; nevertheless, what we do in the way of securing beneficial legislation, bringing about a better understanding between the retailers on the one hand and the jobbers and manufacturers on the other, and the correction of trade abuses—all this, with its many details, represents much more profit to our members than does the saving on insurance. Much of this work is done so quietly that the association gets but little credit for it.

It would be to the advantage of every dealer who comes to Dallas to buy goods to take time to drop into the secretary's office and get a glimpse at the inner workings of the association. It would be an eye-opener to him to see just how we keep tab on conditions existing all over the State. He would be surprised to learn how much machinery is often set in motion by some brief letter from a member—or perhaps a non-member—calling attention to trade evils in his locality.

The Catalogue House Proposition.

It sometimes happens that when one of our traveling men talks to a dealer about the necessity of his using his influence with his customers against the practice of sending abroad for goods, he is met with this reply: "Well, we aren't troubled with that sort of thing here, and, anyhow, I wouldn't want to advertise the catalogue houses by talking about them. Mum's the word along that line."

Where such dealers make a mistake is in not recognizing the significant truth that the catalogue houses are already advertised to the limit; they themselves have taken care of that. You may think your customer is hardly aware of the existence of mail order establishments, but the chances are that if you visited him in his home you would find one of their catalogues lying around among the magazines. We have gone deeply into the details of this sort of quiet advertising, and could produce some statistics that would astonish you, and cause you to realize that the time has more than come to stand on the defensive.

Fifty Cars of Catalogues.

Only a short while ago one of these houses distributed free in Texas 50 cars of catalogues, each car containing 260 cases, each case containing 24 books. In other words, 312,000 catalogues were sown broadcast over this State, the estimated cost of the books and their distribution being $333,750. Just pause and take in those figures: $333,750 for free advertising! The mail order concerns have the consumers of Texas thoroughly educated in the supposed benefits to be derived from patronizing them, and it is high time for us to give them the other side of the question.

In line with above, we were furnished with statistics some time ago regarding goods which had been sent to different cities in Texas by an outside firm, and stored there for reshipment, and upon which proper taxes had not been paid. We at once took the matter up with the State Revenue Agent, and received his assurance that it would be investigated, with the view of collecting the taxes due on such goods. All this, of course, vitally concerns the dealer, to whom such unjust competition of foreign corporations evading taxes must mean the loss of much trade rightfully belonging to him.

PARCEL POST LEGISLATION.

Parcel Post was the subject of an interesting address by R. W. Shapleigh of the Norvell-Shapleigh Hardware Company, St. Louis, in which some of the more important objections to this sort of legislation were set forth. The following liberal extracts are made from the address:

This is a great and glorious country. I sometimes think that we are getting to be too great; too glorious; that we are getting so swelled up that we are getting careless, and as for being free, we are free in a sense, but perfect slaves in many ways. But our resources are so great and inexhaustible, that our lords and masters who govern us at Washington seem to think that the more of the people's money they spend, the better law makers they are, and the happier and more contented the citizens of this wonderful country should be. This country is so resourceful, that it can for the present, at least, stand even the extravagant and profligate spending of money that we now see pouring out of the national treasury each year.

R. W. SHAPLEIGH.

This Loose Condition of Things

is beginning to attract attention. Each State and district represented in Congress desires their every representative to obtain from the public till as much as they can for river and harbor improvements, public buildings, &c. There seems to be no one to say when to stop spending money. The ordinary common-sense plan of not spending more than one's income is never thought of, with the result that, during a generation, our expenditures have increased about fourfold, without anything like a corresponding increase in population.

In 1907, the Government expenditures exceeded the income by $58,000,000. In 1908, the excess of expenditures over the income, according to the treasury report, will be $114,000,000. In the year 1909 the deficit is estimated at $143,000,000. It is pretty hard for an ordinary mind to grasp the significance of these vast sums.

In addition to all of these things we now are again confronted with the demand for Parcel Post legislation, to add its heavy burden of increasing the deficit of the Postal Department. Let us try to treat this subject of Parcel Post fairly, and to view it calmly and dispassionately from all sides, and determine if it is best for us to adopt it.

P. O. Department and Parcel Post.

Let us see who are advocating it, and their reasons for so doing. The officials of the Post Office Department are striving to have parcel post legislation enacted, and rather naturally, as they may honestly believe that a measure of this kind would enhance the value of the department and mark an achievement in methods that would crown their names with glory for ever and ever. It must be remembered, however, that the officials of the Post Office Department look at all matters concerning changes and developments in their department from a purely administrative standpoint, and the large economic questions involved of such vital interest to the country at large trouble them very little, if at all.

Change in Front on the Part of Catalogue Houses.

The catalogue houses advocate it. These large mail order concerns have in the past maintained that they have not advocated the work for parcel post legislation, but that they have been unfavorable to it. It is true that they have not openly advocated it in the past, but there is every reason to believe that they have been working for it secretly and under cover. See now what a change in their attitude. They come boldly forward and declare openly for these measures. They seem to have reached the conclusion that the influence of their many customers brought to bear upon Senators and Congressmen will more than outweigh any disadvantages that their open advocacy of this measure would cause.

Thus the issue is very clearly drawn, and justifies the position that the opponents to parcel post have taken in the past, that the parcel post law would benefit only the large catalogue houses. These concerns have even gone so far as to send circulars and petitions to their customers and asked them to sign and forward them to Representatives and Congressmen. There is no question as to why these houses are advocating parcel post legislation.

Educating Congressmen.

It cannot be denied that this parcel post idea is upon the first superficial glance attractive to the average legislator, who burns with the holy zeal to benefit the entire country, and particularly his own constituents by his wisdom. Many Congressmen, no doubt, honestly believe that they would be doing the public a great service and go down in history as public benefactors, if they aided in passing legislation that would apparently prove a blessing to the people of the country by enabling them to obtain their merchandise at so much less cost.

In this lies a great deal of the danger, and it must be our duty to educate the Congressmen in regard to the meaning and effects of the adoption of any parcel post legislation and to convince them of the disastrous effect that it would have on the country at large.

Parcel Post Measures.

Now, let's get down to facts and see just where we stand to-day, and to use a homely phrase, "Just what we are up against." At the adjournment of the last session, all parcel post legislation had been defeated. The President in his message to the present Congress advocated some action on the parcel post question and the rural route scheme. The Postmaster-General in his annual report asked that an experimental limited local rural route parcel post be established in, not to exceed four counties in the United States, for packages of fourth class matter originating on a rural route, under such regulations as the Postmaster-General might determine. The result is that eight measures advocating parcel post legislation in various forms have been introduced into Congress. These bills cover a wide variety of projects, and may not be very dangerous, but show the tendency to demand some legislation on this subject.

Mr. Lafean's Bill.

The bill that most vitally concerns us, and one that will have to be fought most bitterly on account of its apparent fairness and reasonableness is Mr. Lafean's bill for experimental Parcel Post, the text of which is as follows:

Be it enacted, &c., That the Postmaster-General, for the purpose of ascertaining the practicability of establishing a rural parcel post system on the rural delivery routes throughout the United States, be, and he is hereby authorized and directed to experiment and report to Congress on the first Monday of December, 1909, the result of such experiment, by establishing a limited local parcel post, confined entirely to rural delivery routes, and in not to exceed four counties in the United States, for packages of fourth-class matter, originating on a rural route, or at its distributing post office for delivery by rural carriers to patrons thereof, at such a special rate of postage and under such regulations as the Postmaster-General may deem advisable, and that no parcel shall be accepted from any person acting as representative for any person or company not a resident of such rural delivery routes, or in the town from which they emanate, and that only such parcels be received for delivery at the special rates of postage as are offered by *bona fide* merchants or dealers whose regular places of business are on such rural delivery routes, in the ordinary and regular course of their business and in their individual capacity, by residents on such routes.

A Subtle and Dangerous Proposition.

This bill is in line with the recommendation of the Postmaster-General, and is very subtle and very dangerous. In the meantime, however, a general election has taken place; a new President has been chosen, and many changs in the *personnel* of Congress have taken place. It is generally believed that the present Postmaster-General will be succeeded by Frank Hitchcock, who let us hope may not be so eager a partisan of parcel post legislation. These changes, however, will be of no effect until after this session of Congress. This session is a short one, and it is possible that in the stress of the many controversies and the large amount of business that will engage its attention the parcel post matter may not be brought forward; but, on the other hand, there is always the danger that in the hurry of the legislation at the last moment some measures in regard to it may be passed without notice.

The P. O. Deficit.

It cost the people in the United States last year over $208,000,000 to run the Post Office Department, and there was a deficit in this Department of $17,000,000. The Postmaster hopes to show by the operation of the experiment of the rural post as outlined in Mr. Lafean's measure that the additional revenue obtained thereby would when this measure was generally adopted prove very profitable and wipe out entirely the present ever increasing deficit. This is pure conjecture, and it may well be doubted if even the routes that might be established in the four counties would be self-sustaining, though they would in all likelihood be established in the most populous parts of the country. Without doubt, if a general system of rural parcel post of this kind was established on all rural routes throughout the country, as would finally result, they could only be maintained at an enormous loss.

The Provisions and Safeguards

that seem to be thrown around the home merchants in the Lafean bill are childish. Congress could not pass the bill with these restrictions, because they are so plainly unconsti-

tutional. The danger is that Congress may pass a bill of this character without these restrictions.

We must resist with all of our strength the adoption of any parcel post legislation whatever. Our platform and our slogan must be no parcel post of any kind; rural or otherwise; experimental or positive. Nothing in the shape of an entering wedge must be allowed.

Arguments Against Parcel Post.

A few of the reasons that make this attitude on our part reasonable are that the adoption of a parcel post measure in any form is absolutely hostile to the interests of the retail merchants in the country and to the whole community in which they live. That the retail merchant does not want it. That it is contrary to public policy for the Government to engage in the business of transporting merchandise. It is a well-known fact that the strength and stability of any country is represented not by the inhabitants of the large cities, engrossed as they are in the mad pursuit of dollars, and with a mental horizon too often bounded by the limits of their city, but in the inhabitants of thousands and thousands of hamlets, villages, and towns scattered all through this broad, beautiful country, where a man can breath ozone into his lungs from the air. Where they have time to think, where they are not bound by the rivalry for riches and position or engrossed entirely in the race for power and preferment, and these are the people who would be injured by parcel post.

The reasons against the establishment of any measure of this kind have been so often and so thoroughly exploited that it is not necessary to reproduce them to-day, but if there was no other reason, the effect that a law of this kind would have on rural communities is the one argument sufficient to condemn it forever more.

In the Event of a Parcel Post.

Is it necessary to draw a picture of the future of these now prosperous and contented communities when parcel post has been established? Can you not see in your mind's eye the gradual decay that will surely overtake them? You can observe the shipping by freight of hundreds of pounds of merchandise by the catalogue houses to the initial point of the rural route, from there to be distributed by the rural parcel post to every farmer in the vicinity.

You can see how this will cause a gradual dwindling away of the business of the merchant in town; till it is necessary for him to close up and move away. You can note the decline in attendance at schools and in the efficiency of the instruction. You can see the churches dwindling in membership, unable to pay their pastor, and finally having to close their doors. The traveling salesmen—those energetic and bright men who keep the people of the smaller places posted and in touch with outside matters and things, and who spend their money freely, and contribute so much to the prosperity and life of a town, find it does not pay them to stop there any more. The telegraph office finally closes; the livery stables abandoned from lack of patronage. The value of farm property and town lots decreases steadily; the loss of social life making the remainder of the inhabitants self centered and narrow, and so on, ad infinitum.

But, let's draw the veil! It makes a horrible picture, but a true one. Could the United States long survive such a condition? It would result in the people of the rural districts, unable to make a livelihood there, flocking to the big cities, which are all packed and crowded, unable now to take the proper care of their destitute and poor. They have gone to the cities to swell the crowds of undesirable citizens that hibernate in steadily increasing numbers in the big places. The safety of the future of this country is in increasing the number of rural inhabitants, and to diminishing concentration in large cities.

A Vital and Far Reaching Subject.

To my mind this question of parcel post is the most vital and far reaching subject that confronts the American people to-day. The pertinacity and vigor with which this subject is presented to Congress session after session, and in so many and various specious and plausible guises shows that those behind it are determined and powerful, and that eternal vigilance can be our only price of safety, and if you in convention assembled here to-day can influence your Representatives of the great State of Texas in Congress to oppose and vote against any parcel post measure, you will have accomplished enough to pay you many times over for the time and expense attending these conventions if the association lives to have a hundred of them, as I hope it may.

Lining Up Members of Congress.

Now, let us consider the best way to counteract these measures. I will mention only the State of Texas, although I think this plan could be successfully adopted in all the States. Texas is represented in Congress by 16 Representatives and two Senators. Each of these 18 men has a home and lives in the community. I respectfully suggest that you appoint a committee of the most energetic and active of your membership, whose duty it shall be to at once draw up a petition, protesting against any parcel post legislation; such petition to be signed by every merchant in whatever line and every person of standing in the home town of each Representative and Senator in the State of Texas. Such petition should be presented to him by a committee of influential men and personal friends who are in sympathy with your work.

I believe in the personal equation. I believe that a direct request of a close friend is worth many petitions signed by strangers, which more often than not raise a feeling of antagonism in the recipient, and make him feel that he is being coerced.

On the other hand, every man likes to stand well in the community in which he lives, and has his social life, where his children are born and raised, and it seems to me that in order to get quick and effective action, a direct personal appeal by friends and neighbors must be resorted to, and that quick work on this line will result in practical and prompt results.

W. L. SANFORD'S ADDRESS.

An able address was delivered by W. L. Sanford of Roberts, Sanford & Taylor Company, Sherman, in which he touched at length on the subject of freights, catalogue house competition and the position of the local jobber. We give the following extracts from his paper:

Some statistician has said: "Texas is an empire in itself; she has more wheat lands than both the Dakotas; more corn lands than Illinois; more fruit lands than California; more timber lands than Wisconsin; more marble than Vermont; more granite than New Hampshire; more iron than Alabama; more cotton than any other State, and more rice than all the other States."

Freight Burden.

He might have added, if not for the purpose of inducing immigration, simply as another point of distinction, that Texas, all things considered, has the highest interstate freight rates of any State in the Union—and, like all of her other institutions, her rates are still growing, the last advance having been made last August.

W. L. SANFORD.

If the rate of taxation were increased 1 per cent. there would be a protest in this State that would be heard from Red River to the Gulf. And yet the railroads are, by indirect taxation, imposing a burden upon the people of Texas that amounts to a great many million dollars every year, and the people quietly submit to this assault upon their pocketbooks and this blow at the material progress of the State, scarcely uttering one word of protest. I can attribute this only to the fact that the people are ignorant of the rate situation; that they are not educated on this subject; that they do not realize what an injustice and what a discrimination the railroad companies are imposing upon Texas. But if they but half knew, there would be a commercial revolution that would shake this State from center to circumference.

Twenty-four Years Ago.

When I came to Texas, 24 years ago, the fourth class rate of freight from St. Louis to Texas common points was 77 cents. This rate was unreasonably high, and was so considered by the shippers and by the railroad representatives who had the courage of their convictions to the extent that they were outspoken in their views upon the rate situation. At the same time, there were many mitigating circumstances. Steel rails and railroad equipment generally were very much higher than to-day. The road beds were new, and the cost of maintenance was correspondingly greater than to-day. Texas, being a pioneer State, and sparsely settled, afforded only a small amount of tonnage compared with that of to-day.

Furthermore, between Kansas and Texas, a distance of about 300 miles, there was a vast wilderness which the interstate roads traversed, and from which they got but little tonnage. Consequently, the people were inclined to be liberal and patient, reasonably hoping that as the years went by and as the cost of operation decreased, and as the tonnage increased, the railroads would make corresponding reductions in their interstate tariff rates.

Again in those pioneer days, the railroads did not get the tariff rate and they supplied the shippers with free transportation. It was not uncommon for the railroads to give a rebate of 25 per cent. on local rates and 50 per cent. on carload rates.

Average Rate on Hardware 40 Per Cent Higher.

Now, what has been the outcome of those years of patient waiting? Instead of reducing the rates, the

railroads have gradually increased them. The fourth class rate in 1887 was 77 cents, and the fourth class rate in 1909. 22 years after, is $1.04, showing an increase of 33 1-3 per cent. The minimum carload in 1887 was 24,000 lb., and the minimum carload to-day on the same commodities is 36,000 lb., showing an increase in the minimum of 50 per cent. And taking into consideration the fact that in those days the tariff was not maintained, and the further fact that no free transportation is now given, it is safe to say the average rates to-day on Hardware are 40 per cent. higher than 15 years ago. I challenge the railroad world to show a parallel to these figures! The railroads can bring a vast array of statistics to show that their rates are perfectly fair and legitimate, but the trouble about the railroads is that they swear one way before the Railroad Commission of Texas, and they swear another way before the Tax Assessors of Texas.

Excessive Damage Suits Assigned as the Reason.

The open argument of some railroad people is the high rates in Texas are due to the fact of the excessive damage suits rendered against the transportation companies. In reply to this I say if the railroad magnates would put more of the revenue into the improvement of the roads and less into their pockets, there would be fewer damage suits against them. It is true that the railroads have been the victims of professional damage suit lawyers, and they should have the protection of a law fixing the maximum liabilities for accident and death. At the same time no sensible man believes that the damage suits they lose justify the excessive freight rates they charge.

Texas and Oklahoma Rates.

Other railroad people use as an argument the statement that decreased tonnage and increased operating expenses demand an advance in freight rates. This being true I ask why did they advance the rates in Texas and reduce them in Oklahoma? It is a fact that the rates in Oklahoma are less than in Texas, though the tonnage is less. It is a fact that the railroads, as an example, haul a car to Dallas at a certain rate and haul another car through Dallas, about 250 miles farther, to Oklahoma City, for about $50 per carload less. It is a fact that the small towns of Oklahoma have lower rates of freight than the large jobbing cities of Texas. I challenge any man to give a valid excuse for this: I challenge any man to show why goods should be hauled through Texas to points several hundred miles farther at a lower rate of freight than is charged the Texas shipper. Again,

If the Decreased Tonnage Demands an Advance in Rates,

then on the principle that "it is a poor rule that does not work both ways," a large increase in tonnage ought to cause a decrease in rates. But for several years back when the railroads were taxed to their utmost to handle the business, when every flat footed leaky, old box car was brought into use, when the railroad commissions of the several States were demanding that the roads increase their freight equipment you will observe that they made no reduction whatever in freight rates. Other enterprises, when hard times come and business is poor, in order to hold their own, reduce expenses instead of advancing their prices, and this is what the railroads ought to have done.

Texas Has Been Generous.

The people of Texas have been generous with the railroads. By land grants and cash bonuses they have practically built the roads and given them to the companies to operate; and, therefore, they have every reason to expect fair treatment at their hands. Yet these same companies have put Louisiana, Arkansas and Oklahoma in a position to invade our State and secure the business that rightfully belongs to us. If the merchants of north Texas are not entitled to rates that will permit them to control the trade of southern Oklahoma they, at least, are entitled to rates that will prevent Oklahoma from invading their own territory. They at least are entitled to be put on the same basis. If the present condition continues, it will not be long until Oklahoma will develop large jobbing houses that will draw their support largely from north Texas and when they once get a foothold in that section it will be a hard struggle to dislodge them.

What the Texas R. R. Commission Can Do.

Now, what are we going to do about this? What can be done? The Railroad Commission of Texas has no authority over interstate transportation, but it does control absolutely the rates in this State. Washing several hundred miles of our shores is one of the greatest bodies of water in the world, and we have some of the finest harbors of the world. Into these harbors are coming ships sailing the flags of all the great nations of earth. The fleets of three great coastwise transportation lines are daily coming to our shores. The gulf is flecked with sailing vessels and tramp steamers. We can always deliver goods at our Texas ports at a favorable rate of freight, the present rate for 2200 miles being 12 cents.

But we are not reaping the benefit of the advantages which a benign Providence has bestowed upon us. We are not being profited by our great world-famed waterway. Our rates should be abnormally low, instead of abnormally high. While it is true that the Railroad Commissioners of Texas cannot control interstate rates directly, still with one sweep of the pen they can adjust the whole rate situation in Texas. They can reduce the rates from the Texas ports to Texas common points, and in so doing can reduce the interstate rates and give relief to the people in their great extremity.

The Interstate Commerce Commission, if persistently importuned, might in the course of human events give relief to the people of Texas; but what we want is instant relief, and that relief can be given by the Railroad Commissioners of Texas, if they but rise to the demands of the occasion and do what the people of Texas have a right to expect them to do.

Catalogue House Competition the Greatest Evil.

Were I to ask each member of this or any other retail association what is the greatest evil that threatens the future of his business, I believe that the answer would be almost unanimous that it is the encroaching competition of catalogue houses—those pirates on the sea of domestic commerce—and the answer would be the right one. We have only to review the facts to see what an unfair situation confronts the retail business of the country.

Local Retail Merchant a Public Benefactor.

The retail merchant helps to maintain the city, county and State government. He contributes to the community in the employment of clerks, in the payment of rents, or in taxes, if owning property; he is a patron of the banks, and without his patronage the town newspapers would suspend. He contributes to the building of private roads and bridges, and has a financial interest in every country church and schoolhouse in his territory. In times of public calamity his heart is responsive, and his hands are opened wide to help the homeless and bereaved.

He carries a stock of goods commensurate with the demands of his trade, and is there on the spot to fulfil every promise and make good every contract. In the spring he supplies the farmer and waits until harvest for his pay; and if, as is often the case, the crops fail, then he waits another year—and some are still waiting! He buys at more than the market price the produce of the farmer, and enables him to turn into money much that would otherwise be lost. He sells the mechanic goods at a cash price and gets his money on the installment plan.

He pays 15 cents to deliver to a customer a 5-cent box of Tacks and sell the Hardware for a public building at cost and subscribes $50 to the enterprise. He keeps on hand a chest of tools, a box of Assorted Nails, a few coils of Rope, a Wire Stretcher, a Wheelbarrow and an assortment of Step Ladders for the free use and accommodation of his neighbors. If there ever was a public benefactor it is the retail Hardware dealer in a small town.

Catalogue House a Drain Upon the Country.

How about the catalogue merchant? He contributes nothing to the community from which he draws his trade. His name is not on the tax rolls, his beneficence is not seen in the local church, schoolhouse, asylum or hospital. His name is not written on the multiplied subscription lists that are daily circulated in behalf of those whom sorrow and adversity have overtaken. He is deaf to the appeal of the widow and the cry of the homeless child. Left to him the corn might rot, and the cotton turn yellow in the fields. He offers no market where the thrifty wife may dispose of her garden truck, her surplus butter, chickens and eggs, neither does he aid the farmer or the mechanic by a generous extension of credit, nor do either look to him for help in times of crop failures or financial panics. Whoever heard of him building a private country road or bridge for the convenience of the farmer? Of what value is he to the local banker, or the local printer, or the man seeking employment? He takes everything and gives nothing in return. He is a drain upon the country.

An Unjust and Deplorable Condition.

Furthermore, with his wealth, he has entered the political field, and is trying to become a ward of the Government, as he is already a parasite upon the business world. And yet the local retail merchant is daily confronted with his prices, with his catalogues, with his goods in the hands of the people whom he has aided in many ways. Daily he sees instances where the people of his community have bought at no lower price, and often at a higher price, the same kind of goods that lie on his own shelves, and which were purchased to meet their reasonably expected patronage. It is the most unjust and deplorable condition of business that ever confronted the retail merchant of any country. In this statement I feel that every member of the Texas Retail Association will agree, and I am glad to note that the National Retailers' Association have for years been making a vigorous campaign of education against the encroachment of the catalogue houses.

Everything Equal, Buying Should Be Done at Home.

I lay down this proposition: Everything being equal, no citizen, whether consumer or merchant, is justified in buying in foreign markets the goods which he can buy at home at the same price, and to the extent that he does patronize foreign institutions to that extent that he does he impoverish his own State and community, and inflict injustice on his neighbor and compatriot. What has enriched the East and impoverished the South and West is the stocks in all public service corporations are owned and controlled in the East. The railroads, the telephone and telegraph companies, the water and light companies, the traction and insurance companies are controlled almost entirely by Eastern capital; and, therefore, the revenue, over and above operating expenses, goes to build up mammoth fortunes in the East, as the taxes of Israel went to increase the splendors of the Roman Empire.

Position of the Local Jobber.

The jobber occupies the same relative position with the retailer that the retailer does with the consumer. Did you ever think of that? Did it ever occur to you, my friends, that while you are making war upon the catalogue houses, perhaps you are inflicting upon your home jobber the same injustice that you complain of on the part of your customers?

Your home jobber is a citizen of the same great State as yourself. He is contributing his part to the maintenance of the municipal, county and State governments. He is supporting all the public institutions in which you are interested. He stands behind you in times of financial distress. He is your fellow-citizen, your neighbor and frend. With you he is working for the advancement of the same people and for the upbuilding, the honor and the glory of the same proud commonwealth. Is he not entitled, therefore, on equal grounds to your liberal patronage? Does he get it? You will observe that I say on equal grounds. I am aware that no local jobber in the Southwest is prepared to handle the entire account of a large retail Hardware dealer, nor does any assume to do so.

There are special brands of goods which have been widely advertised for a number of years, which cannot be bought in the home markets; there are some goods for which there is only a local demand which the home jobber cannot afford to stock; there are lines in which the home jobber cannot offer as large and varied assortment as his foreign competitors, and consequently, the retail dealer must go outside his State to supply his wants. But the question which I would emphasize is this: Do you buy from your local jobber everything that you can buy at the same price or cheaper, freight considered, as from his foreign competitors? If not, I ask with the utmost consideration are you treating him fairly, or as the President would say, are you giving him a square deal?

Home Jobber a Powerful Ally.

Has it ever occurred to you what a powerful ally you have in your home jobber, or what a tremendous loss of profit you would sustain if he were removed from the field? As you anticipate the wants of your customers so he anticipates your requirements and frequently ships in an enormous stock of season goods months before the demand begins that he may fill your orders when your own trade opens up. You can gauge your purchases by the conditions of the crop at harvest without incurring a single element of risk, but he has to stock the goods long before the ground is plowed, and if crops fail he must carry over the goods and stand the loss of interest on the investment. Or late in the season you can order from hand to mouth and promptly supply your customers without carrying over any surplus stock. With his stock to draw from and with the terms which he offers you you can sell an article for cash, order it by telephone, get it in a few hours by express, make your profit, have the use of the money for 60 days and never have 1 cent invested. A retail merchant if he will patronize his home jobber as freely as the conditions justify can do the same amount of business on half the capital necessary where he sends to foreign markets for his goods.

Protects the Retailer Against Unreasonably High Prices.

There is another fact which I wish to emphasize in this connection: The home jobber is the greatest protection the retailer has against paying unreasonably high prices for his goods. Remove the home jobber and you would find some enormous and sudden advances. You wouldn't read about them in the trade journals, but you would hear about them when the foreign drummer came around.

On Nails, Wire, Horseshoes, and similar heavy commodities you would pay from 50 to 75 cents per cwt. more, according to the differential between carload and less than carload rates; you would not get a cent more for the goods, and your stocks would be broken half the time. Therefore, while you may not fully realize it, the average retailer situated at a great distance from the large jobbing centers is in a large measure dependent upon the local jobber for his success in business.

Mutual Interest.

Please mark this: If it is true, and the fact is not debatable, that it is better for the retailer to buy one article from the local jobber, if he can buy it to an advantage, then it follows that the more items he buys from the local jobber at a favorable price the more is he benefited; consequently, it is to the interest of the retailer not to weaken his home jobber through lack of patronage, but to strengthen him by his patronage and his influence, thereby enabling him to extend his business, increase his stock, buy in larger quantities and cheaper, and thereby become of more benefit to the retailers in his territory.

Some Prejudice Against the Home Jobber.

You will pardon my candor in saying that there is unquestionably a prejudice on the part of many retail merchants against buying from the home jobber. This is true more particularly of the older merchants, who years ago were compelled to look to the northern markets for their goods. They have bought so long from foreign jobbers that they have grown to look upon the home jobber as an unwelcome innovation, if not a presumptuous upstart, forgetting that the years have brought some material changes in business conditions in the South and Southwest, and that he is one of the products of the new order of things.

The railroads have built up cities in the waste places, and the cities have developed merchants with the enterprise and means to handle the trade of their section, and the leading manufacturers have contributed to this end by placing their goods on a resale plan by which every recognized jobber can handle with profit to himself and advantage to his customers the business of his legitimate territory. They have taken the wise position that they would rather market their product through a hundred small jobbers than through two or three large jobbers and to do this, they have placed the small jobbers on exactly the same footing in the way of price as they do the large jobbers—and it is shortsightedness, indeed, on the part of the retailer if he fails to avail himself of the benefit thus offered by patronizing the home jobber.

Selling at Retail.

Some retailers offer as a reason for not patronizing their home jobber that the latter also sells at retail, and is, in a measure, his competitor. But this does not always hold good. Many local jobbers do no retail business whatever, and still their volume of business is not perceptibly larger than that of their competitors who do a retail business. As a matter of fact our own house four years ago discontinued the retail business, confining our sales to merchants, and while our sales showed much increase in volume, it was hardly commensurate with the great sacrifice we made in giving up the oldest and largest retail Hardware store in the north Texas River belt.

There is one thing certain, the local jobber cannot grow unless you help him to grow. And when you have helped him to attain a good volume of wholesale business, he will in the natural order of things drop his retail department, as St. Louis jobbers have recently done, thereby benefiting you by relieving you of whatever competition he might have been and by offering you a larger and better assorted stock from which to draw.

When Prices Are as Low or Lower Than Those of Foreign Jobbers.

I repeat here what I have often said, if the retail merchants in our territory would buy from us only those articles on which our prices were as low, or even lower, than our St. Louis competitors, we would be willing to drop every other item from stock; for in so doing we could greatly reduce our expenses and increase our sales threefold. Furthermore, I believe nearly every other jobber would make the same proposition.

Why should he buy 25 Freezers six months prior to the demand for them, when he can buy a small quantity from his local jobber at the same price, and ship the goods as needed? Why should he pay $2.88 for a Dexter Saw in St. Louis, when he can get the same saw at the same price at home, and save $1 per cwt. in freight? Why should any merchant in any State in the Southwest buy from St. Louis a single Revolver, Gun or Rifle that is on the re-sale list, when he can get the same article at home in less time, at the same price, and save the difference in freight?

Mixed Carload Considerations.

Why should the retail merchants in any given territory for the benefit of a St. Louis house, combine their orders, making up carloads of Hay Ties, Poultry Netting, Screen Doors, steel goods, and such like commodities, when they do not save one fraction of a cent by doing so, but absolutely jeopardize their own interest by placing themselves in the position where they have to anticipate their wants six months ahead, and take the goods regardless of whether the season justifies the purchase? I am broad enough to conceive why merchants would divide their trade at the same price and under similar conditions, but I cannot, for the life of me, understand why first-class business men will sacrifice their own interest to divert business from their local jobber

to foreign jobbers, who in no way support the public institutions of their State, and have no claim whatever on their patronage that is superior to the claim of the local jobber.

Retailer Standing in His Own Light.

I could mention hundreds of instances where the retailer is standing in his own light, working against his own financial interest, and inflicting injustice upon his home jobber by buying from foreign jobbers, but I will not discredit your intelligence nor tax your patience by so doing, but will close this address with a sense of deepest gratitude to you for your patient indulgence, and your charitable criticism, feeling that if what I have said will influence a greater amount of business to the jobbers of Texas, I have not made this visit nor spoken to you in vain. In placing your orders, always remember that the jobbers of Texas, like yourself, are animated with the high and commendable purpose of promoting the welfare of this State at home and of enlarging its prestige abroad. They are standing shoulder to shoulder with you in every good work that looks to the advancement of the State, and to the happiness and prosperity of the people, and they deserve at your hands the loyalty and consideration without which no cause and no undertaking can be crowned with success.

PHILADELPHIA HARDWARE MERCHANTS AND MANUFACTURERS' TWENTY-THIRD ANNUAL BANQUET.

THE largest as well as the most successful banquet in the history of the Philadelphia Hardware Merchants and Manufacturers' Association took place at the Bellevue-Stratford Hotel in that city, on the 20th inst.

Reduced Reproduction of Front Cover of Menu.

It was the twenty-third annual reception and banquet of the association, and members and guests to the number of nearly 200 attended. The reception by the past and present officers was held in the Red Room, the banquet being served in the Clover Room, which was profusely decorated for the occasion.

As its principal guests the association had Robert Garland, president of the American Hardware Manufacturers' Association, who responded to the toast, "Our Manufacturers"; Hon. John E. Reyburn, Mayor of Philadelphia, who spoke on "Our City"; Rev. Luther B. Wilson, D.D., LLD., Bishop of the Methodist Episcopal Church; James A. Emery, Washington, D. C., who responded to the toast, "One Against Two Million," and James H. Kennedy, editor of the *Hardware Dealers' Magazine*, whose toast was "Reflections of an Editor." Others seated at the speakers' table were the following: Edward S. Jackson, president of the association; William W. Supplee, Robert J. Johnson, Chas. M. Biddle, Hugh McCaffrey, Alix W. Stanley, Wm. Glasgow, Jr., James H. Ritter, F. D. Mitchell, Frederick A. Underhill, Paul A. Griffith, T. James Fernley, A. J. Bihler, T. H. Taylor, Thomas Devlin, Jos. M. Rogers, C. Z. Tryon and S. R. Slaymaker.

President's Address.

After proceeding to the banquet hall Edward S. Jackson, president, introduced the Rev. Dr. Wilson, who invoked Divine blessing. At the close of the banquet Mr. Jackson, who acted as toastmaster, welcomed those present in a brief address, as follows:

I am pleased again to have the privilege of welcoming you to our Hardware dinner. Particularly am I pleased to see our out-of-town friends; and the junior members of our association who so actively and loyally help us. To you also I say thrice welcome!

This dinner is in celebration of the twenty-third anniversary of our association, and this large attendance argues well for future activities. This event that we celebrate is the bright business day that has followed the dark business night of 1908, and we might justly call it our Hardware New Year's Day.

We, therefore, stand upon the mountain top of hope, and look with yearning desire and expectation as to what the New Year has in store for us. Whatever the past successes or whatever the measure of our misfortunes, we are filled with trust that our affairs are to be improved. This wise optimism is the anchor of all our lives. This hour might be likened to the hour of regeneration which we meet with willing minds made buoyant by anticipation. Let us march forward bravely and intelligently, and may 1909 be to us all our best of years.

I will now read the names of our beloved members who have passed into the Great Beyond during 1908, the mere mention of whose names suggests the range and character of the influence exerted by the Hardware Merchants & Manufacturers' Association: Walter E. Devlin, Thos. Devlin Mfg. Company; Samuel Disston, Henry Disston & Sons; Ellicott Fisher, Ellicott Fisher Company; Chas. Hessenbruch, H. Hessenbruch & Co.; Ferdinand Phillips, Phillips, Townsend & Co.; E. F. C. Young, Jos. Dixon Crucible Company.

Other Addresses.

The toastmaster then introduced as the first speaker of the evening Hon. John E. Reyburn, Mayor of Philadelphia, who responded to the toast, "Our City." Mayor Reyburn called attention to the great and diversified manufacturing industries of the city. He said that Philadelphia stood out before all the world, its development had been steady, and it had been and would continue to be the aim of the administration to make it a well governed city, so that the growth in that direction may keep pace with its great advances in industrial activity.

Robert Garland, president of the American Hardware Manufacturers' Association, was then introduced and responded to the toast, "Our Manufacturers." He reviewed the organization and its work, its position on national and commercial matters, and its efforts to benefit the trade in various ways.

Bishop Luther B. Wilson responded eloquently to the toast, "The New Epoch." He pointed out that it was no longer "Arms and the man," but "Tools and the man" that were responsible for the advancement of the country, and that conquest was now by development rather than destruction. The advancing army represented by "tools and the man" was moving forward with a solidity which presaged permanent success.

An extended address was made by James A. Emery of Washington, D. C., who spoke on the topic, "One Against Two Million." He referred to the complex forms of social, political and industrial organization. The organization of labor or corporations, he said, resulted in benefits of great value, but the power so obtained must be wisely used. The power of aggregate capital has already shown how great its value is in industrial, social and educational matters. Both evil and good have resulted from the organization of labor, which has no better friend than the courts, which have given it its present legal status, but there is no less necessity for the regulation of its acts or those of its agents than is done in the case of corporations. The attitude of labor in a number of cases was cited by the speaker, the recent controversy of labor with the Buck's Stove & Range Company, St. Louis, being reviewed at length.

James H. Kennedy, editor of the *Hardware Dealers' Magazine*, responded briefly and happily to the toast, "Reflections of an Editor."

During the banquet musical selections were rendered by the Bellevue-Stratford orchestra, while vocal selections were given by several local soloists.

The usual table decorations, Hardware, Tools and Specialties, for which the banquets of the association are noted, were more profuse than ever, and added materially to the artistic appearance of the banquet tables. The following manufacturers contributed:

American Fork & Hoe Company: Forks, Hoes, &c.
National Enameling & Stamping Company: Coal Hods and Shovels.
Baeder, Adamson & Co.: Envelope Openers.

Thomas Devlin Mfg. Company: Meat Choppers, Coffee Mills, &c.
North Brothers Mfg. Company: Eye Glass Screw Drivers.
Jos. Dixon Crucible Company: Package of Pencils.
Pike Mfg. Company: Grinders.
Miller Lock Company: Padlocks.
Stanley Rule & Level Company: Zig Zag Rules.
John Pfeiffer & Co.: Shovels.
Enterprise Mfg. Company: Coffee Mills and Meat Choppers.
Liveright Brothers: Files.
McCaffrey File Company: Files and Leather Covered Memorandum Books.
Henry Disston & Sons: Saws.
Fayette R. Plumb, Inc.: Hammers and Hatchets.
E. K. Tryon Company, Lead Pencils.

The committee in charge of arrangements for the banquet: Joseph J. McCaffrey, Harry C. Disston, A. S. King, T. James Fernley, Frank Huff, Edward S. Jackson and Arthur K. Liveright, were highly commended for their efforts in making the banquet a success in every particular.

Automobile Lamps.

C. T. Ham Mfg. Company, Rochester, N. Y., represented by John H. Graham & Co., 113 Chambers street, New York, is fitting its line of automobile lamps for electrical as well as acetylene gas lighting. The electric lamps are operated by storage batteries. One reason for the electrical equipment is the discrimination against the intense glare of acetylene lamps in the cities and crowded streets. A number of new patterns have been added and the round lamps are now obtainable in two sizes—7 and 6¼ in. in diameter of front and other parts in proportion. The black nickel finishes brought out last year are making substantial progress. This style, while being handsome in appearance, is more readily kept clean.

Sidewalk Ice Chopper.

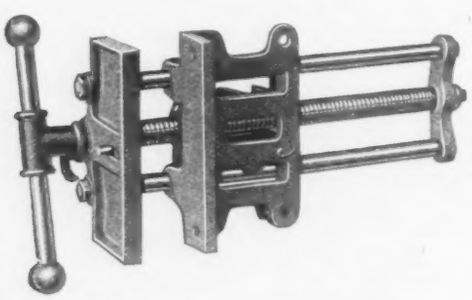
The L. & I. J. White Company, Buffalo, N. Y., is manufacturing the sidewalk ice chopper or scraper shown here-

Sidewalk Ice Chopper.

with. The blade is made from specially selected steel carefully ground to proper shape and highly tempered. It is pointed out that as it is steel laid and heavy, it will stand any hard knocks it may get, that it will not break out from hard usage and that no ice is too hard for it.

A Quick Acting Manual Training Vise.

The combination vise shown herewith can be used either as a regular screw or as a quick acting vise. It is unnecessary to reverse the handle to release the racking device so as to open or close the jaws. It is simple in construction, having but eight parts. It is made in eight different sizes, with jaws 10 in. long and 4 in. deep.

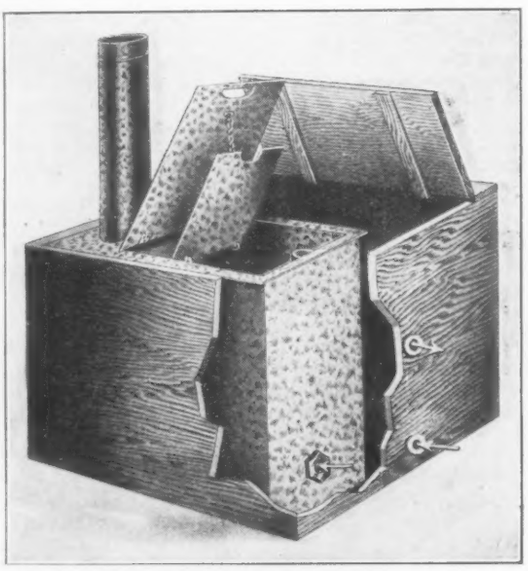


A Quick Acting Manual Training Vise.

The vise is furnished with wood or leather face on the jaws, as required, and is finished either with or without a taper attachment to the front jaw. The vise is constructed with rods of cold drawn steel, high grade tool steel screws and with jaws of high grade gray iron castings. It is designed especially for manual training schools and woodworking plants, where a fast acting vise at a reasonable cost is required, and is put on the market by the G. M. Yost Mfg. Company, Meadville, Pa.

The Drew Grub Tank Heater.

The Drew Elevated Carrier Company, Waterloo, Wis., is putting on the market the grub tank heater herewith illustrated, designed to heat milk, water or swill. This



The Drew Grub Tank Heater.

small tank or hot water box, made in two sizes, 24 and 26 in. high, is designed to place inside a farmer's large tank. The hot water box is of wood, lined with galvanized iron, to render it water tight. Inside the tank is a firebox of heavy galvanized steel. A small fire is built in the firebox when water is to be heated. This will heat the water in the small tank; the cold water will flow from the large tank into the small one through the lower hole, forcing the hot water out of the small tank into the large one, through the upper hole. The firebox is small and has a pipe running through it lengthwise just above the fire, thus forcing a circulation of water which is quickly heated. The firebox has two covers, one 8 in. below the other. The fire is kept below the lower cover, hence under the water. Wood, corn cobs or soft coal may be used for fuel. When the water in the large tank becomes warm enough the valves may be closed and the water in the small tank will quickly get very hot. This will provide lukewarm water in the large tank for live stock to drink and hot water in the small tank for heating milk and feed.

THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J., and 68 Reade street, New York, has produced a special graphite grease for automobile gear cases of Maxwell cars, to be known in the trade as No. 675. The company guarantees a 5-lb. can for $1.50 retail, for an aggregate of 5000 miles, and with especially tight cases this amount of grease has been known to answer for nearly 8000 miles.

THE REINHART VARIETIES COMPANY, Canton, Ohio, manufacturer of embroidery hoops, is calling attention to the fact that it is also equipped for turning out all kinds of wood turnings and special handles to the order of manufacturers.

The Rochester Vise.

The Quick Automatic Vise Company, 236 Mill street, Rochester, N. Y., is offering the automatic vise shown herewith. When a workman is working on a lot of small pieces of metal, none of which are left in the vise a long

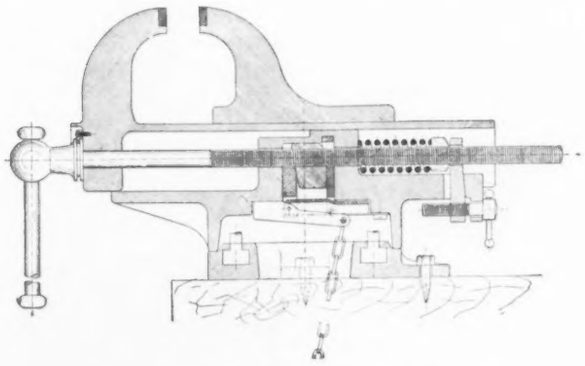


Fig. 1.—Sectional View of the Rochester Vise.

time, he may instantly release any object from its jaws by merely stepping on the lever, without loss of time and with a minimum of muscular exertion. It is when a man is working on a number of similar pieces that the

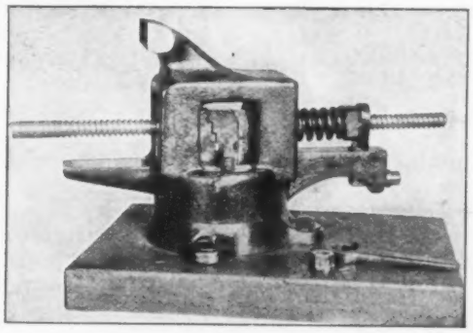


Fig. 2.—Rochester Vise Mechanism with Jaws Closed.

greatest saving of time and strength is effected. He puts the first piece into the vise and tightens the jaws, after which no further adjustment is necessary. When he wishes to remove that piece he throws his weight on the lever and the jaws open. The piece is removed and an-

Fig. 3.—Rochester Vise in Use.

other put in its place. When the pressure on the lever is removed the jaws return to their former position, holding the second object absolutely firm. This process is continued until the whole series has been run through the vise. The result is a saving of the time that it would take to adjust the vise for each piece, practically making the work a continuous and uninterrupted operation. The nut, through which the screw passes at the rear, has a slight play between the threads, so that when the lever is depressed the jaws may be spread 3-16 in. The vise can be used as an ordinary vise if desired, and is suitable for the heaviest kind of work, the jaws opening 8 in. The wrench shown on the side of the vise in Fig. 3 permits revolving the vise through a half circle, thus allowing the jaws to be set at the most advantageous angle. The jaws are of solid steel 4 in. wide and the adjustments are all of steel. The screw is ¾ in. in diameter and has four threads to the in. The automatic mechanism consists of a large nut, Fig. 2, through which the screw runs, and which is held firmly in position by two movable pieces. These latter are attached to the foot lever, and when the lever is depressed they are pulled down, the bevel of the rear piece forcing the nut forward and opening the jaws. When the lever is released the heavy spring on the rear part of the screw pulls the nut back into place, while a small spring, Fig. 1, raises the movable piece nearest the jaws.

Coes 12-In. Automobile Wrench.

The Coes Wrench Company, Worcester, Mass., represented by J. C. McCarty & Co., 21 Murray street, and John H. Graham & Co., 113 Chambers street, New York, has brought out the Coes 12-in. automobile wrench, here shown. It is made entirely of steel with jaws but 11-16 in. wide, made possible by a somewhat smaller bar, the dimensions of which for the portion on which the movable jaw slides being ⅜ x 15-16 in., with handle 11-32 x

Coes 12-In. Automobile Wrench.

15-16 in. in which is an opening in the end for hanging up, if desired. The wrench is offered as a strong, compact and comparatively light tool suitable for work about an automobile. The jaw opening is 2 9-32 in. and larger than found in the other models of 12-in. wrenches. The knurled rosette, it will be noticed, is in the movable jaw instead of being accommodated on the step plate as ordinarily. The step plate or shoulder is forced on to the handle and riveted.

The Atkins New Grass Hook.

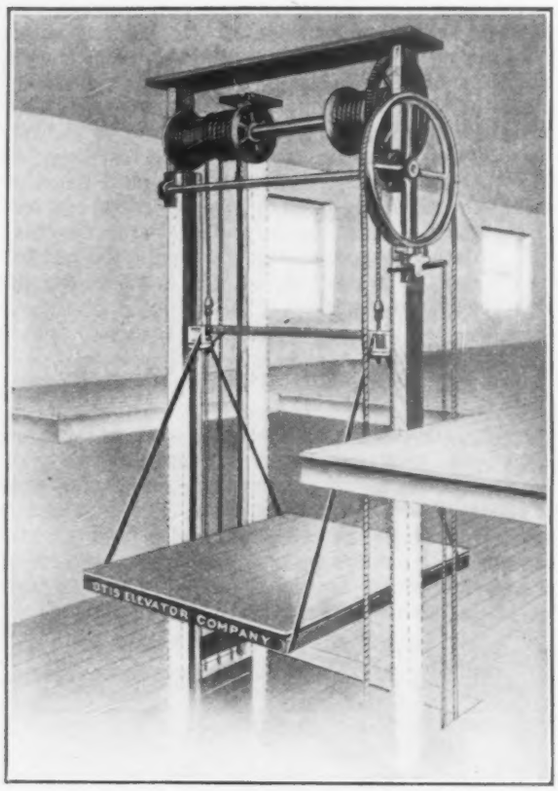
E. C. Atkins & Co., Indianapolis, Ind., are offering the new grass hook shown herewith. The blade is shaped so that corners and out of the way places may be easily reached. The handle is of wood, easy grip pattern, with a strong casting which is fastened to the

Atkins New Grass Hook.

blade by bolts and nuts. The blade has an offset, where it is fastened to the handle so as to provide ample space for the operator's knuckles, to avoid bruising and tearing them when using the hook. The blade is made of silver steel, which will retain a cutting edge for a very long time.

Hand Power Elevator No. 4A.

A new hand elevator comprising a late addition to equipment of this kind made by the Otis Elevator Company, Chicago and New York, is here illustrated. It includes some improvements of a practical nature over the ordinary hand power hoist. Because of design, and few parts used in its construction, its erection is an easy matter for the purchaser, who can readily assemble and

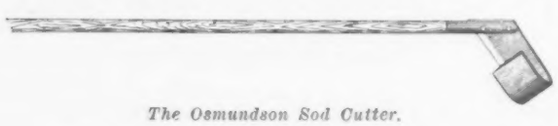


Hand Power Elevator No. 4 A.

place it in position. Two timbers, 6 x 8 in., carry the overhead shaft, upon one of which the main gear and iron hoisting drums are keyed, the second shaft carrying the rope wheel and driving pinion. Two ½-in. lifting cables lead from the winding drums and are secured to a platform framed of steel channels and angles, the supporting joists of which are mortised to fit the inner face of steel channels. Wood is, therefore, eliminated in the construction of the essential parts and utilized only for the floor and joists of platform and for the guides. A steel shaft underneath the platform carries two steel safety dogs, which are held free of the guide strips by the tension of the lifting cables, and the parting of either cable will cause both safety dogs to engage the guides and thus support the platform. While every effort has been made to simplify the construction, care has been taken to provide ample strength in all parts, and a design calculated to produce a safe, durable and efficient machine. The elevator is built for capacities of 1500, 2000 and 2500 lb.

The Osmundson Sod Cutter.

The Osmundson Spade Mfg. Company, Perry, Iowa, has added to its products the sod cutter shown in the ac-



The Osmundson Sod Cutter.

companying illustration. It is especially designed for trimming sod along the edges of cement sidewalks, and is constructed to withstand the rough usage incident to such work. The tool consists of a hook shaped cutting blade firmly rivited to a long ash handle. The blade is made of black diamond oil tempered steel, and it is claimed that for a practical turf edger the tool successfully meets all requirements.

Ladle Bowls and Pitch Barrels.

The ladle bowl shown in Fig. 1, when in use, is lined with clay and a pouring lip is formed in the clay. The bowl is of stamped seamless construction and is provided with a corrugation to hold it in the shank. It is explained that the bowl being much lighter than a cast iron ladle bowl, is much more durable, since it is protected from wear by the clay lining and is not subject to breakage. The bowl is 7 in. deep and 8¾ in. in diameter. In Fig. 2 is shown a barrel for use in shipping pitch, tar

Fig. 1.—Ladle Bowl.

Fig. 2.—Pitch Barrel or Mold.

and asphalt, this material being poured into it and allowed to harden. The barrel tapers to the bottom, so that to remove the contents it is only necessary to invert the barrel and occasionally apply a little heat to the outside. The side seam of the shell is folded and interlocked, no rivets being used, obstructions within the barrel being thereby avoided. The bottom is stamped from a single sheet of heavy steel and has a flange of 1 in. The flange is turned downward and is riveted to the shell to a heavy steel band which is welded and shrunk on. The top edge of the barrel is rolled over a heavy steel rod, which is also welded. The company states that the barrels will withstand many years of ordinary use. The ladle bowl and barrel are put on the market by the Kilbourne & Jacobs Mfg. Company, Columbus, Ohio.

The W. & H. Automatic Wrench.

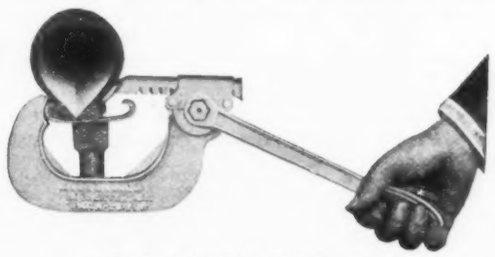
The automatic wrench shown herewith is put on the market by the Webb & Hildreth Mfg. Company, Gloversville, N. Y. It is quick adjusting, the jaws being held in a closed position by a coil spring when not in use and

The W. & H. Automatic Wrench.

opened by a pressure of the thumb, as shown in the illustration. The lower jaw forms a part of the head and the upper jaw is a part of the rack which meshes in the pinion on the end of the pivoted handle. The wrench will work equally well on pipe, nut or lag screw, and it forms a perfect ratchet on a nut. The jaws open ¾ in. and the wrench measures 11 in. over all. The device is designed for the use of machinists, engineers, automobilists, linemen and millwrights.

The L & M Tire Shoe Loosener.

The Long & Mann Company, Rochester, N. Y., manufacturer of automobile tools and accessories, is offering the automobile tire loosener, herewith illustrated, as in use. It is designed to loosen tires that rust or freeze to



The L. & M. Tire Shoe Loosener.

rims. The clamp is made of high grade malleable iron, with a guaranteed tensile strength of 63,000 lb. The guard, in which the rack works, is made of flat cold rolled steel. The tool complete weighs 3 lb. is 9 in. long over all, and is finished with plain white nickel plating. The handle is detachable and fits on the pinion, which is in conjunction with the teeth of the rack. The detachable handle permits the clamp to fit in tool boxes. In operation the finger, or outer end of the clamp, is first placed against the bead of the rim on the opposite side from the operator, the body of the clamp extending underneath the rim. The rack is then placed in position, with the flange of the rack resting against the bead of the tire over the bead of the rim. Then the handle is placed in position, and with a backward pull the tire is forced away from the rim by means of the great leverage thus obtained. The tool loosens the tire all the way around, between spokes as well as above them, and is so made that both sides of the shoe may be loosened with equal ease. The tool is equally useful for any make of tire or rim, whether clincher or quick detachable. The company also makes a tool with a rack 8½ in. long, or 3 in. longer than the one illustrated, to force tires clear off the rims as well as to loosen them. It is pointed out that the tools are constructed of such material that they will last a man as long as does his automobile.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—	℔ gal. bbls.
Linseed, Western, Raw	.54 @55
State, Raw	.54 @55
City, Raw	.55 @56
Boiled, 1¢ ℔ gal. advance on Raw.	
Raw, Calcutta, in bbls.	.70 @..
Lard, Prime, Winter	.75 @78
Extra No. 1	.51 @53
No. 1	.49 @50
Cotton-seed, Crude, f.o.b. mill	.34 @34½
Summer, Yellow, prime	.42¾@43
Summer, White	.44 @45
Yellow Winter	.48 @49
Tallow, Acidless	.56 @58
Menhaden, Brown, Strained	.34 @35
Northern Crude	@..
Southern	.28 @30
Light Strained	.34 @35
Bleached Winter	.36 @37
Ex. Bleached Winter	.38 @40
Cocoanut, Ceylon ℔ lb	7 @..
Cochin ℔ lb	7½@ 7¾
Cod, Domestic, Prime	.38 @40
Newfoundland	.39 @40
Red Elaine	.41 @43
Saponified ℔ lb	6¼@ 6¼
Olive, Yellow	.$1.45@$1.50
Neatsfoot, Prime	.57 @58
Palm, Lagos ℔ lb	6⅛@ 6¼

Mineral Oils—	℔ gal.
Black, 29 gravity, 25@30 cold test	.13 @13½
29 gravity, 15 cold test	.13½@14
Summer	.12½@13
Cylinder, light filtered	.20½@21
Dark, filtered	.18 @19
Paraffine, 903-907 sp. gravity	.14½@15
903 sp. gravity	.13½@14
903 sp. gravity	.11 @11½
Red	.13½@14

Miscellaneous—	℔
Barytes:	
White, Foreign ℔ ton	$18.50@20.50
Amer., floated ℔ ton	17.00@18.00
Off color ℔ ton	12.50@15.00
Chalk, in bulk ℔ ton	3.00@ 3.40
China Clay, Imported ℔ ton	11.50@18.00
Cobalt, Oxide ℔ 100 lb	1.45@ 2.60
Whiting, Commercial ℔ 100 lb	42@52
Gilders ℔ 100 lb	.55@ .60
Ex. Gilders ℔ 100 lb	.60@ .65

Putty, Commercial— ℔ 100 lb	
In bladders	$1.70 @1.80
In bbls. or tubs	1.20 @1.45
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine— ℔ gal.	
In Oil bbls	.41½@45
In machine bbls	.45 @45½

Glue—	℔ lb
Cabinet	.12 @15
Common Bone	.7½@ 9
Extra White	.18 @24
Fish, liquid, 50 gal. bbls., per gallon	.60 @1.20
Foot Stock, White	.12 @14
Foot Stock, Brown	.9 @11
German Common Hide	.10 @12
German Hide	.12 @18
French	.10 @10
Irish	.13 @16
Low Grade	.10 @12
Medium White	.14 @19

Gum Shellac—	℔ lb
Bleached, Commercial	.17 @18
Bone Dry	.22 @23
Button	.29 @30
Diamond I	.34 @35
Fine Orange	.25 @28
A. C. Garnet	.18 @19
G. A. L. Garnet	.16 @17
Kala Button	.12 @13
D. C.	.35 @36
Octagon B	.28 @29
T. N.	.18 @19
V. S. O.	.31 @32

Colors in Oil—	℔ lb
Black, Lampblack	.12 @14
Blue, Chinese	.36 @46
Blue, Prussian	.32 @36
Blue, Ultramarine	.13 @16
Brown, Vandyke	.11 @14
Green, Chrome	.12 @16
Green, Paris	@24
Sienna, Raw	.12 @15
Sienna, Burnt	.12 @15
Umber, Raw	.11 @14
Umber, Burnt	.11 @14

White and Red, Lead &c.— ℔ lb	
Lead, English white, in Oil	.10⅛@10⅝
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	6¾
Dry and in Oil, 25 and 50 lb kegs	7
Dry and in Oil, 12½ lb kegs	7¼
In Oil, 25 lb tin pails	7¼
In Oil, 12½ lb tin pails	7¾
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	8¾
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½¢ ℔ lb advance over above prices of White and Red Lead and Litharge.	
Lead, American, Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry— ℔ lb	
American, dry	.5⅛@ 5⅝
Red Seal (French process)	.6¾@ 7
Green Seal	.7¼@ 7½
German Red Seal (French process)	.7 @7¼
Green Seal	.7½@ 7⅝
White Seal	.8¼@ 9
French, Red Seal	.8⅝@ 8¾
Green Seal	.10⅜@10⅝

Dry Colors— ℔ lb	
Black, Carbon	.6¼@10
Black Drop, American	.3½@ 8
Black Drop, English	.5 @15
Black, Ivory	.16 @20
Lamp, commercial	.4 @ 6
Blue, Celestial	.4 @ 6
Blue, Chinese	.30 @32
Blue, Prussian, Domestic	.28 @30
Blue, Ultramarine	.3½@15
Brown, Spanish	.½@ 1
Carmine, No. 40	.$3 10@3 25
Green, Chrome, ordinary	.3½@ 5
Green, Chrome, pure	.17 @25
Ocher, American ℔ ton	$8.50@16.00
American Golden	.2½@ 3¼
French	.1½@ 2
Foreign Golden	.3 @ 4
Orange Mineral, English	.10 @12
French	.12¾@13
German	.12 @13
American	.9 @10
Red, Indian, English	.4½@ 6
American	.3 @ 3¼
Red, Turkey, English	.4 @10
Red, Tuscan, English	.7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
English ℔ 100 lb	$1.15@1.60
Sienna, Italian, Burnt and Powdered	.3 @ 9
Italian, Raw, Powdered	.3 @ 7
American, Raw	.1½@ 2
American Burnt and Pow'd	.1½@ 2
Talc, French ℔ ton	$18.00@25.00
American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	.90@ 1.00
English ℔ 100 lb	.80@ 1.00
American ℔ 100 lb, No. 1	.75@ .80
American ℔ 100 lb, No. 2	.60@ .65
Umber, T'key, Bnt, & Pow.	2¾@ 3
Turkey, Raw and Powdered	2¾@ 3
Burnt, American	1½@ 2
Raw, American	1½@ 2
Yellow, Chrome, Pure	.12¾@15
Vermilion, American Lead	.7 @25
Quicksilver, bulk	.65 @..
Quicksilver, bags	@66
English, Imported	@70
Chinese	$0.90@1.00

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued annually, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Columbian and Domestic.....33⅓%
North's 10%
Upson's Patent, ℔ gro., $29.90.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent.....10%
Ives' Stop Bead Screws and Washers 10%
Taplin's Perfection.....10%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti—Rattlers—
Fernald Mfg. Co. Burton Anti-Rattlers, ℔ doz. pairs, Nos. 1, $0.75; 2, $0.60; 4, $1.00; 5, $0.50.
Fernald Quick Shifter, ℔ doz. pairs .....$2.00@$3.00

Anvils—American—
Eagle Anvils.....℔ lb @8 ¢
Hay-Budden, Wrought.....9½@9¾ ¢
Trenton .....℔ lb 9½@9¾ ¢

Imported—
Swedish Solid Steel Paragon, ℔ lb .....10@10¾ ¢
Swedish Solid Steel Sisco, Superior, ℔ lb .....10@10½ ¢
Peter Wright & Sons, ℔ lb. 84 to 349 lb, 11 ¢; 350 to 600 lb, 11½ ¢.

Anvil, Vice and Drill—
Millers Falls Co., $18.00.....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co.....10%

Augers and Bits—
Com. Double Spur.....80%
Jennings' Patn., Bright.65&10@70%
Black Lip or Blued...65@65&5%
Boring Mach. Augers.....70%
Car Bits, 12-in. twist.....40&10%
Ford's Auger and Car Bits.....40&5%
Ft. Washington Auger Co., Conard's 35%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list.....50%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in, twist.....60%
Snell's King Auger Bits.....50%
Swan's .....65&10@70
Swan's, Jennings' Pattern.....50%
Wright's Jennings' Bits.....50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's Pattern, No. 1, ℔ doz., $26; No. 2, $18.....60&10%
Ford's, Clark's Pattern...60&5@60&10%
C. E. Jennings & Co., Steer's Pat..25%
Lavigne Pat., small size, $18.00; large size, $26.00.....60&10%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dbl. Cut.....*$3.00@3.25*
German Pattern, Nos. 1 to 10, $4.75; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames .....20&10%
Universal 20%

Ship Augers and Bits—
Ship Augers.....*40&10@—%*
Ford's .....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 6%
Watrous' .....33⅓&7½%
Snell's 48%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled .....*gro. $2.75@3.00*
Unhdld, Shldered...*gro.63@66¢*
Unhandled, Patent..*gro.66@70¢*
Peg Awls:
Unhandled, Patent..*gro. 31@34¢*
Unhdld, Shldered..*gro. 65@70¢*
Scratch Awls:
Handled, Com...*gro. $3.50@4.00*
Handled, Socket..*gro.$11.50@12.00*
Elmore Tool Mfg. Co.:
Tinners' and Brad Awls.....55&7½%
Scratch Awls.....60%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights: Per doz.
First Quality.....*$4.75@5.00*
Second Quality.....*$4.25@4.50*
Double Bit, base weights:
First Quality.....*$7.00@7.50*
Second Quality.....*$6.50@6.75*

Axle Grease—
See *Grease, Axle.*

Axles—Iron or Steel.
Concord, Loose Collar...4½@4½¢
Concord, Solid Collar....4½@5 ¢
No. 1 Common, Loose...3½@4¼ ¢
No. 1½ Com., New Style.4¼@4¾¢
No. 2 Solid Collar.....4¼@4¾¢
Half Patent:
Nos. 7, 8, 11 and 12.....70%
Nos. 13 to 15.....70%
Nos. 15 to 18...70&10@70&10&5%
Nos. 19 to 22...70&10@70&10&5%

Boxes, Axles—
Common and Concord, not turned .....*lb., 5@6¢*
Common and Concord, turned, lb.. 6@7¢
Half Patent.....*lb., 9½@10¢*

Bait—Fishing—
Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances—Sash—
Caldwell new list.....50&10%
Pullman .....50&10%

Spring—
Light Spring Balances..60@60&5%
Chatillon's:
Light Spg. Balances.....50@50&10%
Straight Balances.....40@40&10%
Circular Balances.....50&10%
Large Dial.....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 2¼@2½¢

Towel—
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beam, Scale—
Scale Beams.....*40%*
Chattillon's No. 1.....30%
Chatillon's No. 2.....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.80; Tinned $0.85
No. 11 Wire Coppered ℔ doz. $1.15; Tinned $1.20
No. 10 Wire Tinned.....℔ doz. $1.50

Beaters Egg—
Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $7.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $24.00; No. 4, Hotel Size, $30.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. 6, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—
Blacksmith, Standard List:
Split Leather.....*60&10@65%*
Grain Leather.....*50@50&10%*

Hand—
Inch..	6	7	8	9	10
Doz..	$5.00	5.50	6.00	6.50	7.50

Molders—
Inch..	10	12	14	16
Doz..	$7.50	9.00	12.00	15.00

Net Prices.

Bells—Cow—
Wrought Cow Bells.....*75%*
Jersey .....75&10%
Texas Star.....50%

Door—
Home, R. & E. Mfg. Co.'s.....55&10%

Hand—
Polished, Brass.....*60@60&10%*
White Metal.....*60@60&10%*
Nickel Plated.....*50&10%*
Swiss .....*50&10%*
Coue's Globe Hand Bells.....33⅓@35%

Miscellaneous—
Farm Bells.....*lb., 2¼@2¾¢*
Church and School....*60@60&10%*

Belting—Leather—
First Quality, Ex. Hy., Strictly Short Lap.....*60&10%*
Standard .....*70&10@70&10&5%*
Light Double.....*75&10%*
Cut Leather Lacing.....*45@50%*
Leather Lacing Sides, per sq. ft.25¢

Rubber—
Competition (Low Grade). 70&10@75%
Standard .....*60&10@70%*
Best Grades.....*40@50%*

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Green River Tire Benders and Upsetters 20%

Bicycle Goods—
John S. Leng's Son & Co.'s 1908 list:
Chain, Parts, Spokes.....50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—
Common Wooden.....*75@75&5%*
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
See also Machines, Hoisting.

Boards, Stove—
Paper and Wood Lined.....*55%*
Embossed *55%*

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co.....33⅓&10%

Bolts
Carriage, Machine, &c.—
Common Carriage (cut thread):
⅜ x 6 and smaller.....*75&5%*
Larger and longer.....*70&5%*
Common Carriage (rolled thread):
⅜ x 6, smaller and shorter, 75&10&5%
Phila. Eagle, $3.00 list...*80@—%*
Bolt Ends, with C. & T. Nuts, 70&10%
Machine (Cut Thread):
¾ x 4 and smaller.....*75&10%*
Larger and longer.....*70&10%*

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knobs:

Inch	3	4	5	6	8
Per doz..	$0.30	.35	.45	.60	.80

Cast Iron Spring Foot, Jap'd:

Inch	6	8	10
Per doz..	$1.20	1.50	2.25

Cast Iron Chain, Flat, Japanned:

Inch	6	8	10
Per doz..	$1.00	1.40	1.65

Cast Iron Flat Shutter, Jap'd, Brass Knobs:

Inch	6	8	10
Per doz..	$0.75	.95	1.25

Wrought Barrel Japanned, 80&10@80&10&5%
Barrel Bronzed.....*60&10%*
Spring .....*70&10@70&10&10%*
Shutter .....*50&5@50&10&5%*
Square Neck.....*75@75&10%*
Square .....*70&10&10@80%*
Ives' Mortise.....10%
Ives' Wrought Metal.....10%

Expansion—
F. H. Evans' Crescent.....40@60%
Richards Mfg. Co.....55&10%
Star Expansion Bolt Co.:
Star, Lag Screw Type..60&10&5&2½%
Star, Wood Screw Type.....40%
Star, Machine, Single Wedge....60%
Star, Machine, Double Wedge....60%
Steward & Romain Mfg. Co.:
Style No. 13, Double.....60%
Style No. 1, Single.....60%
Style No. 100, Dbl. Jaw, Single..55%
Lag Screw.....66⅔%

Plow and Stove—
Plow .....*65&5@70%*
Stove .....*85@85&5%*

Tire—
Common Iron.....*80%*
Norway Iron.....*80%*
American Screw Co.:
Norway Phila., list Oct. 16, '84 ..80%
Eagle Phila., list Oct. 16, '84 ..82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 28, '99.....80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct. '84.....80%
Eagle 82½%
Shelton Co.:
Tiger Brand, list Dec. 28, '99....80%
Phila., Eagle, list Oct. 16, 1881..82½%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Bung—
Borers Bung, Ring, with Handle:

Inch.....	1¼	1½	1¾	2
Per doz...	*$4.80*	*5.60*	*6.40*	*8.00*
Inch.....	2¼	2½		
Per doz...	*$8.65*	*11.50*		

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each.....25%

Boxes, Mitre—
C. E. Jennings & Co.....25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme .....15&10%
Perfection 40%
Seavey 45%

Braces—
Common Ball, American..$1.50@$1.75
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 61, 166, 206, 614.....50%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat..50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat....60&10%

Brackets—
Wrought Steel.....*75&10&5@80%*
Bradley Metal Clasp...80&10@80&10&5%
Griffin's Pressed Steel.....75@75&10%
Griffin's Folding Brackets.....70&10%
Taplin Victor Handy Egg Beater Bracket .....℔ doz. $1.50

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co.....75&20%
Wire Goods Co.....75%

Buckets, Galvanized—
M'f'r's list, price per gross.

Quart..	10	12	14	
Water, Reg...	*26.85*	*29.50*	*33.50*	
Water, Hvy...	*45.35*	*48.00*	*52.00*	
Fire, Rd. Btm.	*32.00*	*34.65*	*38.65*	
Well	*37.35*	*41.35*	*45.35*	

10&7½&5&5%

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought, High List, Oct. 16, '06.65%
Cast Brass, Tiebout's.....40&10%

Cast Iron—
Fast Joint, Broad....*40&10@50%*
Fast Joint, Narrow...*40&10@50%*
Loose Joint.....*70&10@75%*
Loose Pin.....*70&10@75%*
Mayer's Hinges.....*70@70&5*
Parliament Butts.....*70@70&5*

Wrought Steel—
Bright.
Light Narrow, Light Reversible .....*70&5%*
Reversible and Broad..*70&5%*
Loose Joint, Narrow, Light Inside Blind, &c......*70%*
Back Flaps, Table Chest..*65%*
Japanned.
Light Narrow, Loose Pin, 50&5%
Light Narrow, Ball Tip..*60%*
Broad .....*40&5%*
Steeple Tipped.....*70%*
Ball Tipped.....*70%*

Extra, 10@—

Cages, Bird—
Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Hendryx Bronze: Series 700, 800.... 30
Hendryx Enameled..... 35%

Calipers—See *Compasses.*

Calks, Toe and Heel—
Blunt, 1 prong, per 100 lb., $3.50@$3.85
Sharp, 1 prong, per 100 lb., $4.00@$4.35
Burke's, 1 pg. Blunt Toe, 3¾¢; 2 pg. Blunt Toe, 4¼¢; 1 pg. Sharp Toe, 4¼¢; 2 pg. Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel..... 4¾¢
Lautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢
Perkins', Blunt, ℔ lb. 3.65¢; Sharp, 4.15¢

Can Openers—
See *Openers, Can.*

Caps, Percussion—
Eley's E. B...... 52@55¢
G. D...... per M 55¢
F. L...... per M 40@42¢
G. I...... per M. 48@50¢
Musket..... per M 62½@63¢

Primers—
Berdan Primers, $2 per M.. 20&5%
Primer Shells and Bullets.. 15&10%
All other primers per M..$1.52@1.60

Carpet Stretchers—
See *Stretchers, Carpet.*

Cartridges—
Blank Cartridges:
32 C. F., $5.50..... 10&5%
38 C. F., $7.00..... 10&5%
22 cal. Rim, $1.50..... 10&5%
32 cal. Rim, $2.75..... 10&5%
B. B. Caps, Con. Ball, Swgd..$1.90
B. B. Caps, Round Ball..... *$1.50*
Central Fire..... 25
*Target and Sporting Rifle..*15&5%
*Primed Shells and Bullets..*15&10%
Rim Fire, Sporting..... 50
Rim Fire, Military..... 15&5%

Casters—
Bed..... 65¢10@70%
Plate..... 60@60&5
Philadelphia..... 70@1.@75%
Acme, Ball Bearing..... 35
Gem (Roller Bearing).....70&10&10&5
Steel Gem (Roller Bearing)..... 70
Standard Ball Bearing..... 45%
Yale (Double Wheel) low list...40&10%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Proof Coil—
American Coil, Straight Link:

3-16	¼	5-16	⅜	½	⅝
$7.70	5.10	4.45	3.50	3.30	3.10

⅝-⅞-1 1⅛ to 1¼ inch.
$3.00 3.10
In cask lots, deduct 25¢.
German Coil..... 70&5%
German Pattern Coil:
6-0 to 1..... 70&10&5%
2 and 3..... 60&10&10@70%
4, 5 and 6..... 50&10@50&10&5%

Halter—
Halter Chains.....60&5@60&10%
German Pattern Halter Chains, list July 2½, '97..... 70&5%
Covert Mfg. Co.:
Halter ..... 35&5%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.-
Traces, Western Standard: 100 pr.
6½—6-3, Straight, with ring..$26.00
6½—6-2, Straight, with ring..$27.00
6½—8-2, Straight, with ring..$30.00
6½—10-2, Str'ght, with ring..$35.00
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c; No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c..... 70%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron..... 60@10&5@60&10&10%
Brass..... 65%
*Safety and Plumbers' Chain..*75%
Gal. Pump Chain....lb., 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil.35&2½@40%
Triumph Dog..... 50&10@60%
Brown Halter and Coil....45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Oneida Community:
American Halter, Dog and Kennel Chains ..... 35&2½@40%
Niagara Dog Leads and Kennel Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain..... 70%
Universal Dbl.-Jointed Chain....70%

Chain and Ribbon, Sash—
Oneida Community:
Steel Chain..... 60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered ..... 60&10%
Sash Chain Attachments, per set..8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $2.00@$5.00
Sash Ribbon Attachments, per set..8¢

Chalk—
Carpenters' Blue.....*gro.,* 50¢
Carpenters' Red.....*gro.,* 50¢
Carpenters' White.....*gro.,* 40¢

Checks, Door—
Bardsley's 45%
Pullman, per gro..... $54.00
Russwin 33⅓%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools..... 55%
Youths' Chests, with Tools..... 40
Gentlemen's Chests, with Tools..50
Farmers', Carpenters, etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty..... 45%
Tool Cabinets..... 45%
C. E. Jennings & Co.'s Machinists' Tool Chests..... 7½%

Chisels—Socket Framing and Firmer
Standard List..80&10@1.80&10&10%
Buck Bros..... 30%
C. E. Jennings & Co.:
Socket Firmer No. 10..... 25&7½%
Socket Framing No. 15..... 25&7½%
Swan's ..... 60&10&70
L. & I. J. White & Co..... 30@30&5%

Tanged—
Tanged Firmers..... 30&5@35%
Buck Bros..... 30
C. E. Jennings & Co. Nos. 191, 181..25
L. & I. J. White Co..... 25&5%

Cold—*lb.*
Cold Chisels, good quality..13@15¢
Cold Chisels, fair quality..11@12¢
Cold Ch sels, ordinary..... *9@10¢*
Elmore Tool Mfg. Co.:
Cold Chisels..... 50&5%

Chucks—
Almond Drill Chucks..... 35%
Almond Turret Six-Tool Chuck..... 40
Beach Pat, each $8.00..... 35&5%
Empire 25
Blacksmiths' 25
Jacobs' Drill Chucks..... 35%
Pratt's Positive Drive..... 25%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws..... 35
Universal, Com. Style Jaws..... 40
Combination, Reversible Jaws..... 35
Combination, Com. Style Jaws..... 40
Round Body or Box Body, 2 Chuck Jaws 25%
Geared Scroll Chucks..... 25%
Drill Chucks:
New Model, 25%; Geared Pattern, 25%; Skinner Patent, ...25%
Positive Drive..... 40%
Planer Chucks..... 20
Standard 45%
Drill Press Vises..... 30
Face Plate Jaws..... 35%
Standard Tool Co.:
Improved Drill Chuck..... 45%
Union Mfg. Co.:
Combination Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21..... 35%
Scroll Combinations, Nos. 83 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35..25%
Independent Iron, Nos. 18 and 318..35%
Independent Steel, No. 64..... 25%
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104..... 35%
Union Czar Drill..... 25%
Universal, 11, 12, 16, 17, 13, 14, 15..40%
Universal No. 42..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50..... 35%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 30%
Westcott Patent Chucks:
Lathe Chucks..... 50%
Little Giant Auxiliary Drill..... 50
Little Giant Double Grip Drill..50
Little Giant Drill, Improved..... 50%
Oneida Drill..... 50%
Scroll Combination Lathe..... 50%
Whitaker Mfg. Co.:
National Drill..... 25%

Clamps—
Carriage Makers', Star, P., S. & W. Co. 50%
Besly, Parallel..... 33⅓&10%
Hammer & Co.:
Adjustable ..... 20&5%
Carriage Makers' H. P. Screw.40&5%
Myers' Hay Rack..... 50%
Lineman's Swedish Neverturn..... 65%
Saw Clamps, see Vises, Saw Filers'

Cleaners, Drain,
Iwan Champion, Adjustable..... 50%
Iwan's Champion, Stationary..... 40%

Sidewalk—
American Fork & Hoe Co.:
Star, ℔ doz., Socket, $4.00; Shank $3.50
Shank, ℔ doz., X 7½, $3.50; Shank, X 8..... $3.75

Cleavers, Butchers'—
Foster Bros..... 30%
Fayette R. Plumb..... 30%
L. & I. J. White Co..... 30%

Clippers, Horse and Sheep—
Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each..$20.00
Stewart's Enclosed Gear Roll Bearing Horse, each.....$6.75
Stewart's New Model Sheep Shearing Machine, each.$12.75
Stewart Enclosed Gear Shearing Machine, No. 9, each..$9.75
} 20%

Clips, Axle—
Regular Styles, list July 1, '05, 80&80&10%

Cloth and Netting, wire—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c..... 75%
Compression Bibbs..... 70%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—
Nickel Chain, Walter B. Stevens & Son's list..... 40%
Leather, Walter B. Stevens & Son's list 40%

Compasses, Dividers, &c.
Ordinary Goods.....*75@75&5%*

Conductor Pipe,—
L. C. L. to Dealers:

	Gal. Steel.	Charcoal.	Copper.
Northeastern:			
	70&10%	50&10&7½%	50&10%
Eastern:			
	70&10&5%	50&10&7½%	50&10%
Central:			
	75&5%	60%	50&10%
Northwestern:			
	75&2½%	60%	50&10%
Western:			
	70&7½%	50&12½%	50&5%
Tennessee:			
	70&10%	50&12½%	50&10%
Southern:			
	70%	50&12½%	50&5%
Southwestern:			
	70%	50&5%	50&5%

Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—
L. & G. Mfg. Co.:

Gal.	2	3	4	6	8
Galvanized,ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15
White Enameled					10%
Agate Lined					10%

Coppers' Tools—
See *Tools, Coopers'.*

Coppers, Soldering—
Soldering Coppers, 3 lb. to pair and heavier, 21½¢; lighter than 3 lb. to pair..... *23½¢*

Cord—Sash—
Braided, Drab..... *lb. 35¢*
Braided, White, Com., Nos. 8 to 12, 22¢; No. 7, 22½¢; No. 6, 23½¢. In lots of 12 doz. or over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18..37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India.....*lb., 11@11½¢*
Cotton Sash Cord, Twisted..18@20¢
Patent Russia.....*lb.*...*20¢*
Cable Laid Russia.....*lb.*...*21¢*
India Hemp, Br'd'd.....*lb.*...*21¢*
India Hemp, Twisted...lb..13@1½¢
Patent India, Twisted..lb....*17¢*
Pearl Braided, cotton, No. 6, ℔ lb. 20½¢; No. 7, 19½¢; Nos. 8 to 12, 19½¢, in 12 doz. to 100 doz. lots. Eddystone Braided, Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to10..... ℔ lb 23¢
Pullman:
Wire Sash Cord..... 10%
Sash Cord Attachments, per 100..$2.00
Samson, Nos. 8 to 12:
Braided, ℔ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord.....50¢
Massachusetts, White...℔ lb 40¢
Massachusetts, Drab....℔ lb 45¢
Phoenix, White, Nos 8 to 12....27¢
} 15%
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—
Full Length..... *90@—%*
Short Length..... *90&20@—%*
Hendryx Standard Wire Picture Cord, old list, 85&10%
Turner & Stanton Co. Wire Picture Cord 90%

Cradles—
Grain..... *50%*

Crayons—
White Round Crayons, Cases, 100 gro., $8.00, $8.50, $9.00 and $10.00 according to grade.
Zelnicker's Lumber: ℔ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black.....$4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks.....$10.00
Genuine Soapstone, Metal Workers', 5 in. x ¾ in. Round, $2.50; 5 in. x ¼ in. Square, $1.75; 5 x ½ x 3-16, $2.50; 5 x 1¼ x 3-16.....$3.00
Suremark, Black, $2.25; Blue, Red and Yellow..... $2.50

Crooks, Shepperds'—
American Fork & Hoe Co.:
Montana ..... ℔ doz. $4.50

Crow Bars—See *Bars, Crow.*

Cultivators—
American Fork & Hoe Co.:
Victor Garden..... 50&10%

Cutlery, Table—
International Silver Company:
No. 12 M'd'm Knives, 1847, ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor..... ℔ doz. $3.00
Wm. Rogers & Son..... ℔ doz. $2.50

Cutters—Glass—
H. H. Mayhew Co..... 40%
Red Devil..... 60%
B. Mfg. Co..... 40%
Woodward 50%

Meat and Food—
American 30%
Nos. 401 402 403 404 405 406 407
Each ...$5 $7 $10 $12 $25 $50 $60
Enterprise:
Nos.....5 10 12 22 32
Each ..$2 $3 $2.75 $4.50 $6 25@25&7½%
No. 202, $1.50..... 40&7½%
P., S. & W. Co.:
Ideal ..... 40@40&5%
Hales ..... 60&5%
Little Giant..... ℔ doz. 40@50%
Nos. 305 310 312 320 322
$35.00 $48.00 $44.00 $72.00 $68.00
New Triumph No. 605, ℔ doz. $24.00 40%
Russwin Food, No. 1, $24.00; No. 2, $7.00; 3, $12.00..... 45&10&10%
$15.00 $18.00
Enterprise Beef Shavers..... 25@30%

Siaw and Kraut—
Henry Disston & Sons:
Slaw and Kraut Cutters..... 35%
Corn Graters..... 30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00

Tobacco—
All Iron, Cheap...doz. $4.25@4.50
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c—
Disston's:
Rapid, ℔ doz., $24.00..... 25%
Samson, ℔ doz., $34.00..... 25%
Iwan's Pat. Post Hole and Well Auger 40%
Vaughan Pattern Post Hole Augers, ℔ doz.. $7.00
Perfection Post Hole Diggers, ℔ doz. $8.50
Split Handle Post Hole Diggers, ℔ doz., $7.50
Hercules Pattern, ℔ doz..... $9.50
Kobler's, ℔ doz., Universal, $14.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer..... $7.50
Never-Break Crucible Steel Post Hole Diggers 60%

Dividers—See *Compasses.*

Drawing Knives—
See *Knives, Drawing.*

Dressers Emery Wheel—
Sterling Emery Wheel Dressers..... 35%
Sterling Wheel Dresser Cutters..... 35%

Drills and Drill Stocks—
Blacksmith's Common Drilling Machines..... *$1.50@1.75*
Breast, Millers Falls..... 15&10%
Breast, P., S. & W..... 33⅓%
C. & C. Ratchet..... 25%
Reversible Ratchet Die Stocks....25%
Goodell Automatic Drills.50&10&10&10%
Millers Falls Automatic Drills, Graves', per doz., Nos. 1, $4.86; 2, $8.16.
Millers Falls Automatic Drills,33⅓&10%
Ratchet, Curtis & Curtis..... 25%
Ratchet, Parker's..... 40%
Ratchet, Weston's..... 40%
Ratchet, Weston's, Style H Improved ..... 40@40&5%
Ratchet, No 012..... 40@40&5%
Ratchet, Celebrated..... 40@40&5%
Ratchet, Whitney's, P., S. & W., 40&10@50%
Whitney's Adjustable, No. 19, $12.00, 33⅓%

Twist Drills—
Bit Stock..... *70@70&10%*
Taper and Straight Shank..... *65@65&10%*

Drivers, Screw—
Screw D'ver Bits, per doz..45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9 ..... 50%
Buck Bros.' Screw Driver Bits..... 30%
Champion 50%
Disston's 50%
Elmore Tool Mfg. Co.:
Hartford..... 66⅔%
Indestructible..... 55&7½%
Standard Neverturn..... 66⅔%
Star ..... 75&5%
Screw Driver Bits..... 25%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Ford's Brace Screw Drivers....40&10%
Gay's Double Action Ratchet..... 35%
Goodell's Auto..... 65@65&10%
Mayhew's Black Handle..... 40%
Mayhew's Monarch..... 40%
Millers Falls, ℔ doz., Nos. 11, $9.95; 12, $13.73; 20, $8.17; 21, $8.16; 41, $13.43; 42, $17.21.
Smith & Hemenway Co., Neverturn, 66⅔%; Elmora, 60%; Star, 30&10%
Swan's:
Nos. 7565 to 7568, 60%; No. 7540, 40&10%

Eave Trough, Galvanized—

Territory.	*Gal. Steel.*	*Copper.*
Northeastern	*75¢10&5%*	*50&10%*
Eastern	*80%*	*50&10%*
Central	*80¢10&5%*	*50&10%*
Northwestern	*80¢10¢5%*	*50&10%*
Western	*80&5%*	*70&5%*
Tennessee	*80&5%*	*50&10%*
Southern	*75¢10%*	*50&5%*
Southwestern	*75¢10¢2½%*	*50&5%*

Terms.—2% for cash. Factory shipments generally delivered.
Note.—Lower prices are made in some sections.
See also Conductor Pipe and Elbows.

Elbows and Shoes—
Factory shipments, all territories: Galv. Steel, Galv. C. I. and Copper.
Sizes 2, 3, 4..... *80%*
Sizes 1½, 2½, 3½, 5, 6...60&10%
No. 26..... *50%*
No. 24..... *25%*
Copper Elbows..... *50%*

Elbows, Stove Pipe—
Edwards, Standard Blue....40&10&10%
Edwards, Royal Blue..... 10&10&10%
Reeves, Dover, Flat Crimp..40&10&5%

Emery, Turkish—

	4 to 4½:	5 to 5½ 220:	Flour.
Kegs.....*lb.*	5 ¢	5¼¢	3¼¢
½ Kegs.....*lb.*	5½¢	5¾¢	3¾¢
¼ Kegs.....*lb.*	5½¢	6 ¢	4 ¢

10-lb. cans, 10 in case....6½¢ 7 ¢ 6 ¢
10-lb. cans, less than 10.....10 ¢ 10 ¢ 8 ¢
Less quantity..10 ¢ 10 ¢ 8 ¢
NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—
Ford's Auger Bit Extensions....40&5%

Ext.actors, emon Juice—
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's Jap'd and Galv., 50 & 5%; Bronze and Plated.....50%
Walling's 50%
Upson's Patent.....40%

Cord and Weight—
Ives, ₱ gro., $1.08.....10%
Titan, ₱ gro., $0.66.....10%

Corrugated—
Acme Corrugated Fasteners.....70%

Faucets—
Cork Lined.....50&10@60%
Metallic Key, Leather Lined, ..60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined..50%
John Sommer's Reliable Cork Lined..50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
Self Measuring:
Enterprise, Self Measuring and Pump, ₱ doz., $36.00.....40&10%
Lane's, ₱ doz., $36.00.....40&10%
National Measuring, ₱ doz, $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.....75&10@80%
Lower Grade....75&10&10@80&10%
Gold Medal.....70%
McCaffrey's American Standard. 60&10&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33⅓@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.60*	*3.85*	*4.15*	*4.65*

Peck, Stow & Wilcox Co.:

In.....	15	17	19	21	24	
	$4.00	4.40	4.75	5.50	6.50	....30%

Reading Hardware Co.....60%

Fodder Squeezers—
See *Compressors.*

Forks—
American Fork & Hoe Co.:
Iowa Dig-Ezy Potato.....70&5%
Hay, Regular, 3-tine.....45&20&12½%
Hay, Regular, 4-tine.....60&7½&5%
Champion, Hay.....60&12½%
Acme, Hay.....60&20%
Manure, Regular, 4-tine.....65&5%
Manure, Regular, 5 and 6 tine...70%
Champion, Manure.....65&5%
Columbia, Manure.....70%
Acme, 4-tine.....60&10&5%
Round Shoulder Header, 4-tine..65%
Champion, Header.....65%
Dakota, Header.....65%
Kansas Header.....65%
Wood, Barley.....35&5%
Steel, Barley.....66⅔%
Columbia, Spading.....70&7½&5%

Frames— Wood Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz.$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.80

Freezers, Ice Cream—

Qt.....	*1*	*2*	*3*	*4*	*6*
Each....	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
10&2½%

Gates, Molasses and Oil—
Stebbins' Pattern.....80@80&5%

Gauges—
Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c..67½%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....25%
Wire, P. S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.80
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....65@65&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush, 25&10@50%
Elwell's 40%

Grease, Axle—
Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, ₱ doz., 1 lb, $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—
Pike Mfg. Co.:
Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power)..33⅓%
Mower Knife and Tool, $5.00..40&10%
Royal Mfg. Co.:
Alundum Grinding Machines, each, Nos. 01, $1.75; 1A, $2.50; 10, $5.00 .....30%
Alundum Sickle Grinders, each, Nos. 20, $5.00; 20A, $6.00; 20A Combined, $6.50.....30%
Alundum Disc Grinders, each, $2.50 .....30%

Grindstones—
Pike Mfg. Co.:
Improved Family Grindstones, ₱ inch, ₱ doz., $2.00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....70%
Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50&5@50&10&5%
Brown Tie Outs.....70&10@75&5%
Covert Mfg. Co.:
Web .....30&2%
Jute Rope.....35%
Sisal Rope.....20%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....45&5@50&10&5%

Hammers—
Handled Hammers—
Heller's Machinists'.....55&10@55&10&5%
Heller's Farriers.....40&5@40&10&5%
Peck, Stow & Wilcox Co.:
Crucible Steel.....40&10@50%
Farriers' .....40&10@50%
Riveting .....40&10@50%
Machinists' .....66⅔@5%
Blacksmiths' 50%
Elmore Shoemakers' Hammers.....75%
Fayatte R. Plumb:
A. E. Nail.....40&2½@40&12½%
Eng. and B. S. Hand.50&10&5@60&5%
Machinists' Hammers.....60&10&5%
Rivet and Tinners'.40&7½@40&12½&5%
Victor Magnetic Tack, ₱ gro....$7.75

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10&10%
Over 5 lb., per lb., 30¢.....
Over 5 lb., per lb., 30¢.80&10&10%

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....40%
Fork, Shovel, Spade, &c.:
Long Handles.....40%
D Handles.....40%

Cross-Cut Saw Handles—
Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@$2.65; Hickory.....$2.15@2.40
Socket Firmer, Apple, $1.75@$1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted,....gro.$1.30@$1.40
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢ 85¢; Not Varnished.....65@75¢
Plane Handles:
Jack, doz., 30¢; Fore, doz...45¢
Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle, ₱ gro. $0.85@$1.50
J. L. Osgood:
Indestructible File and Tool, ₱ gro., No. 1, $8.00; No. 2, $8.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%

W. A. Zelnicker Supply Co.:
Hammer, ₱ doz., 12 in., $2.00; 14 in., $2.00; 16 in., $2.30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3.30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₱ doz., oval, 30 in., $3.80; octagon, 30 in., $3.80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₱ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₱ doz., 36 in., $5.80; 36 in., $7.80.
Pick, ₱ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₱ doz., 12 to 14 in., $2.00.
50%

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00, 60&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....60&10%
Bull Dog, $24.00.....70%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion per set of 4 Hangers, complete with track.....$2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....60&5%
Special .....70&5%
Trolley Hangers and track...50%
Lawrence Bros.:
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
Trolley, No. 30, ₱ pair.....$1.25
McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 60%
Hinged Hangers, King Charm.60%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13.$2.50
Roller B'r'g, Nos. 39, 41, 43, 70&7½%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B. D. No. 17, $1.25; F. D. No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 41..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.25
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing, ₱ doz. 4 in., $12.00; 5 in., $14.00..40&10%
Myers' Stayon Hangers.....60%

Hangers— Garment—
Pullman Trouser, ₱ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.00; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₱ gro. $9.60

Gate—
Myers' Patent Gate Hangers, ₱ doz. net 50%

Joist and Timber—
Lane Bros. Co.....35%

Hasps—
Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₱ doz..60%

Hatchets—
Regular list, first qual.40&12½@—
Second quality.....50&10&5@—

Heaters, Carriage—
Clark, No. 5, $1.25; No. 5B, $1.50; No. 3, $1.75; No. 3D, $2.00; No. 7D, $2.25; No. 3E, $2.50; No. 1, $3.00.....25%
Clark Coal, ₱ doz., $0.75.....20%

Hinges—
Blind and Shutter Hinges
Surface Gravity Locking Blind: Doz. Sets with Fastenings, No. 1, $0.70; No. 3, $1.25; No. 5, $2.65.
Mortise Shutter.....80%
Mortise Reversible Shutter...80%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70&75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%

Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, No. 1647½, ₱ doz. sets, without screws, $0.95; with screws, $1.25.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5%
Acme, Lull & Porter.....75%
Queen City Reversible.....75%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5%
Clark's O. P., No. 1.....75&10%
Clark's O. P., Nos. 3 and 5...75&5%
Tip Pat'n, No. 1.....75&10%
Clark's No. 3.....75&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5%
Shepard's Double Locking.....75%
Champion Gravity Locking.....75&5%
Pioneer .....75&10%
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs	*$2.00*	*2.70*	*5.00*
Hinges only	*1.25*	*1.90*	*3.50*
Latches only	*.70*	*.75*	*.35*

New England:
With Latch.....doz..@$2.00
Without Latch.....doz..@$1.60
Reversible Self-Closing:
With Latch.....doz..@$1.75
Without Latch...doz. ...@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz..$1.15
Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Miscellaneous—
Griffin Mfg. Co., Fleur de Lis Surface Hinges, ₱ doz. prs.....$1.00

Pivot Hinges—
Bommer Bros. Pivot, Ball Bearing 40%
Lawson Mfg. Co. Matchless.....30%

Spring Hinges—
Holdback, Cast Iron...$6.75@$7.00
Non-Holdback, C'st Iron$6.50@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Spring Butt Hinges.....40%
Surface Floor, Ball Bearing 40%
Mortise Floor, Ball Bearing.40%
Lavatory Hinges.....40%
Non-Holdback Screen Door, Nos. 2000 and 900.....40%
Holdback Screen Door, No. 999.....₱ gro, $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor.50%
Garden City Engine House...25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ₱ gr., No. 14, $9.00; No. 18.....$25.00
Columbia, Adj., No. 7, ₱ gr.$12.00
Gem, new list.....30%
Clover Leaf and Acorn, per gro, ...$12.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Columbian Steel.....65&10%
Lawson Mfg. Co.:
Matchless Spring Hinges.....30%
Matchless Jamb Hinges.....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₱ gr. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....25%
No. 777, Sheet Steel Holdb'k, ₱ gr. pr.....$9.00
Standard Mfg. Co.:
Champion Double Acting Door Hinge .....25&10&10%
Standard Double Acting Floor Hinge .....25&10&10%
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
Spring Hinges.....33⅓%
Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list February 10, 1908:
Light Strap Hinges..50&10%
Heavy Strap Hinges..60&5%
Light T Hinges.....50%
Heavy T Hinges.....40%
Extra Hvy. T Hinges.50&10%
Hinge Hasps.....33⅓%
Cor. Heavy Strap....60&5%
Cor. Ex. Heavy T...50&10%
Screw Hook and Strap. — *6 to 12 in..lb. 3½¢; 1½ to 20 in..lb. 3¼¢; 22 to 36 in..lb. 3 ¢*
Screw Hook and Eye:
⅜ to 1 inch.....lb. 6¼¢
⅝-inch .....lb. 7½¢
½-inch .....lb. 8½¢
Extra 10&7½&5%

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—
M'f'gr's list, price per gross:

Inch	*15*	*16*	*17*	*18*
Galv. Open	*$35*	*$39*	*$42*	*$48*
Jap. Open	*26*	*28*	*31*	*35*
Galv. Funnel	*44*	*48*	*52*	*56*
Jap. Funnel	*33*	*36*	*39*	*43*

10&7½&5%

Masons' Etc.
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $1.05
Steel Mortar, No. 158.....each $1.35

Hoes— Eye-

Scovil and Oval Pattern, 60&10@60&10&10%
Grub, list Feb. 23, 1899, 70&10@70&10&10%
D. & H. Scovil.....27½%
Am. Fork & Hoe Co. (Scovil Pattern).....60&5%

Handled—

Cronk's Weeding, No. 1,$2.00; No. 2,$2.50
Star Double Bit.....$2.50
American Fork & Hoe Co.:
Regular, Cotton.....75&10&5&2½%
Crescent, Cultivator.....75&2½%
Mattock, Senior.....70%
Mattock, Junior.....70%
Sprouting.....50%
Tobacco, Harper's.....66⅔&15&10%
Warren.....55&10&10&5%
Ivanhoe.....65&15&10%
Cultivator, B B 6.....70&10&10&5%
Cultivator, B B 6½.....70&10&10&5%
Weeding, Acme.....72½&10&2½%
Scuffle, Lightning.....60&5%

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ₱ doz. $21.00.....45&10%

Door—

Bardsley's, Iron, 40%; Brass and Bronze.....25%
Empire.....50%
Pullman.....25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip.....50%
Superior.....33⅓%

File and Tool—

Nicholson File Holders and File Handles.....33⅓&40%

Fruit Jar—

Triumph Fruit Jar Holder, ₱ gross, $18.00; ₱ doz.....$2.00

Trace and Rein—

Fernald Double Trace Holder, ₱ doz. pairs.....$1.25
Dash Rein Holder, ₱ doz.....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swaty, 50%; German.....33⅓%

Hooks—Cast Iron—

Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Coat and Hat, Reading.....45&20%
Coat and Hat, Wrightsville.....60&5%
Harness, Reading List.....40%

Wire—

Belt, Nos. 1 to 15....75&10@80%
Wire C. & H. Hooks..80@80&10%
Bradley Metal Clasp Wire, Coat and Hat, 75&10@80%; Ceiling..75&10@80%
Columbian Hdw. Co., Gem.....75&10%
Parker Wire Goods Co., King..75&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; V Brace, 75%; Czar Harness, 50%; Ceiling, 75%.

Wrought Iron—

Box, 6 in., per doz., $0.90; 8 in., $1.15.
Cotton.....doz.$1.25@$1.50
Wrought Staples, Hooks, &c.—See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Rush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, best, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz.....$1.25@$1.50
Whiffletree.....lb. 5¼@6¢
Hooks and Eyes:
Brass.....60@60&10%
Malleable Iron.....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks.....40%
Turner & Stanton Co. Cup and Shoulder.....85&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....ft.6@6½¢
3-ply Guaranteed....ft.8½@9¢
4-ply Guaranteed....ft.9½@12¢
Cotton Garden, ¾-in., coupled:
Low Grade.....ft. 8@ 9¢
Fair Quality.....ft.10@11¢

Irons— Sad—

From ¼ to 10.....lb.2½@2¾¢
B. B. Sad Irons.....lb.3¼@3½¢
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Caps	.86	93	96	93
Tin'd Caps	.91	88	1.01	98

New England Pressing..lb.3¾@4¢

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%; Corner.....60%

Pinking—

Pinking Irons.....doz.60@65¢

Irons, Soldering

See *Coppers.*

Jacks, Wagons—

Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Lockport.....50%
Lane's Steel.....30&5%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Ladder—

Richards Mfg. Co., Ladder Jacks..50%

Jointers—

Pike Mfg. Co., Saw Jointers, $7.00..40%

Kettles—

Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co....60%

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks.....60%
American Fork & Hoe Co.:
Easy Cut, ₱ doz., No. 10 C H...$2.10
Easy Cut, ₱ doz., No. 10 B C H.$2.20
Acme, ₱ doz.....$2.35
Dent, ₱ doz.....$2.35
Adjustable, Serrated, ₱ doz.....$1.90
Serrated, ₱ doz.....$1.85
Yankee, No. 1 C H.....$1.35
Yankee, No. 2 C H.....$1.15

Drawing—

Standard List.....80&10@—%
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's.....66⅔@70%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz.$5.00@5.50
Iwan's Sickle Edge.....₱ doz. $9.50
Iwan's Serrated.....₱ doz. $10.00

Miscellaneous—

Farriers' .....doz.$2.60@3.55
Wostenholm's .....₱ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch or Maple, Rubber Tip.....gro.$1.25@1.40
Carriage, Jap., Drive, all sizes, gro.35@40¢
Door, Mineral.....doz.65@70¢
Door, Por. Jap'd.....doz.70@75¢
Door, Por. Nickel..doz.$2.05@2.15
Bardsley's Wood Door, Shutters, &c.15%

Lacing, Leather—

See *Belting, Leather*

Ladders, Store, &c.—

Lane's Store.....25%
Myers' Noiseless Store Ladders.....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co., Melting and Plumbers'.....25%
P., S. & W.....40&10%
Reading.....60%

Lamps,—

Hammer's M. I. Hand.....45%

Lanterns—Tubular—

Regular, No. 0.....doz.$4.35@4.50
Side Lift, No. 0....doz.$4.60@4.75
Hinge Globe, No. 0.doz.$4.60@4.75
Other Styles.....40@40&10%

Bull's Eye Police—

3-inch .....$3.75@4.00

Latches— Thumb—

Roggin's Latches, Jap'd, with Screws .....doz.35@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ₱ doz. $2.00
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....doz.50¢; large, 60¢
Covert Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.

Leathers, Pump—

See *Pumps—*

Lifters, Transom—

R. & E.....10%

Lines—

Wire Clothes, Nos.	18	19	20
100 feet	$2.30	1.95	1.75
75 feet	$1.95	1.65	1.50

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'.....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....₱ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines.....40%
Clothes Lines, White Cotton....20%
Shade Cord, Cotton or Linen....20%

Locks— Cabinet—

Cabinet Locks....33⅓@33⅓@5%

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....10%

Padlocks—

R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—

Ives' Patent:
Crescent.....10%
Automatic Gravity Metal Sash, ₱ gro., $149.58.....10%
Window Ventilating.....10%
Pullman Patent Ventilating Lock..25%
Reading Sash Locks.....40%
Taylor Mfg. Co., Perfect Ventilating, ₱ doz.....$0.75@$1.00

Machines—Boring—

Com. Upr't, without Augers, $2.00@2.25
Com. Angl'r, without Augers, $2.25@2.50
Ford Auger Bit Co.....$22.00
Jennings', Nos. 1 and 4.....25&7½%
Millers' Falls.....5.75
Snell's, Upright, $2.65; Angular, $2.90
Swan's Improved.....40&10%

Corking—

Reisinger Invincible Hand Power... ₱ doz. $48.00

Fence—

Williams' Fence Machines....each, $5.50

Hoisting—

Moore's Anti-Friction Chain Hoist,30%
Moore's Hand Hoist, with Lock Brake.....20%
Moore's Cyclone High Speed Chain Hoist.....25%

Ice Cutting—

Chandler's.....12½%

Washing

Boss Washing Machine Co.: Per doz.
Boss No. 1.....$57.00
Boss Rotary.....$57.00
Champion Rotary Banner No. 1.$57.00
Standard Champion No. 1.....$50.00
Standard Perfection.....$27.00
Cincinnati Square Western.....$33.00
Uneeda American, Round.....$33.60

Mallets—

Hickory .....45¢5@50%
Lignumvitæ .....45¢5@50%
Tinners' Hickory and Applewood .....doz.45¢5@50%

Mangers, Stable—

Swett Iron Works.....50%

Mats, Door—

Acme Flexible Steel.....50%
Elastic Steel (W. G. Co.), new list.50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.:
Coffee.....20@25%
Shell and Corn.....25&10%
National list Jan. 1, 1902.....30%
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side.....50&10%
Swift, Lane Bros. Co.....30%

Motors, Water—

Divine's Red Devil.....30%

$2.50	3.50	10.00	15.00	33⅓%
No. 1.	2	3	4	

Lippincott's:

No.	1	2	3	4	
	$2.50	3.50	10.00	15.00	33⅓%

Pike Mfg. Co., Tool and Knife Grinding.....33⅓%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest, 10-in., $2.00; advance 10¢ for each size.
Cheap, 10-in., $2.25; advance 15@20¢ for each size.
Better Grade, 10-in., $3.00; advance 25¢ for each size.

	12	14	16	18 in.
High Grade	$4.50	4.75	5.00	5.25

Continental.....60%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania.....60%
Pennsylvania, Jr., Ball Bearing 50&10&5%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%

Nails—

Wire Nails and Brads, Miscellaneous .....85¢5@85¢10%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	.. ₱ lb, net, 12¢
Coleman	13	12	12	11	11	net ₱ lb
New Haven..	23	21	20	19	18	.. ₱ lb, net, 12¢
Livingston ..	19	18	17	16	16	.....10%
Western						₱ lb 8½¢

Jobbers' Special Brands, per lb.9¢

Picture—

	1½	2	2½	3 in.
Brass Hd. gro.	.45	.55	.60	.70
Por. Head, gro.	..	1.10	1.10	1.10

Upholsters—

Brass 30%
Plated .....30&10%

Nippers—

See *Pliers and Nippers.*

Nipples—

Standard Nipple Co.:
Wrought Pipe Nipples.....80%

Nuts— *Blank or Tapped.*

Cold Punched: Off list.
Square .....5.30@5.40¢
Hexagon .....5.90@6.00¢
Square, C., T. & R. .5.70@5.80¢
Hexagon, C., T. & R.6.50@6.60¢
Hot Pressed: Off list.
Square .....5.80¢
Hexagon .....6.30¢

Oakum—

Best .....lb.6½¢
U. S. Navy.....lb.6 ¢
Navy .....lb.5 ¢
Plumbers' Spun Oakum..2¾@3 ¢

Oil—

Pike Mfg. Co., Stonoil.....40%

Oil Tanks—See *Tanks, Oil.*

Oilers—

Steel, Copper Plated.....75&10%
Chase or Paragon:
Brass and Copper.....50&10%
Zinc .....65&10@70%
Railroad .....60&10&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 10%; Old Pattern, Nos. 1, 2, 3, 4, 50%.
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%
Maple City Mfg. Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers—Packing Box—

Herculever, ₱ doz., $24.....30%

Can Openers—

Per doz.
Sprague, Iron Handle....30@35¢
Sprague, Wood Handle.....40¢
Sardine Scissors.....$1.75@3.00
Can and Bottle Openers, ₱ doz., net: Yankee, $0.75@$0.85; Little Gem, $0.50@$0.65; Nifty.....$0.75

Egg—

Hartigan Nickel Plate, ₱ doz., $2.00; Silver Plate, $4.00.

Packing—

Asbestos Packing, Wick and Rope, any quantity.....18@20¢

Rubber—

(Fair quality goods.)
Sheet, C. I.....11@12¢
Sheet, C. O. S.....11@12¢
Sheet, C. B. S.....12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ₱ lb, 80¢.....25%

Miscellaneous—

American Packing....lb. 7@10 ¢
Cotton Packing.....lb.16@25 ¢
Italian Packing.....lb. 9@10¢
Jute .....lb. 4@4½¢
Russia Packing.....lb. 9@10¢

Pails, Water, Well, &c.—

See *Buckets.*

Paint—

Dixon's Silica-Graphite, in 1 gal. pails and 5 gal. kegs, 25%; packages of larger size.....20%

Pans— Dripping—

Standard List.....75%
Edwards, Royal Blue.....75%

Fry—

Common Lipped:

Nos.	1	2	3	4	5
Per doz.	$0.75	0.85	0.95	1.15	1.30

Refrigerator, Galva.—

Inch	12	14	16	18
Per doz.	$1.75	2.25	2.80	3.15

Paper—Building Paper

Asbestos:	lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	2½¢
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lb., per 100 sq. ft.	3½¢
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	3¢
	Per roll.
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll,	48@58¢
Medium weight, 30 lbs. to roll.	56@70¢
Heavy weight, 40 lbs. to roll.	75@78¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.	
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton.	$24.50
Red Rope Roofing, 250 sq. ft. per roll.	$1.75

Tarred Paper—

1 ply (roll 400 sq. ft.), ton. $34.00@$38.00
2 ply, roll 108 sq. ft......65¢
3 ply, roll 108 sq. ft......88¢
Slater's Felt (roll 500 sq. ft.).80¢

Sand Paper and Cloth—

Flint and Emery.....50&10%
Garnet Paper and Cloth.....25%

Parers—Apple—

Goodell Co.:
Family Bay State.....₱ doz. $15.00
Improved Bay State.....₱ doz. $36.00
New Lightning.....₱ doz. $7.00
Turn Table '98.....₱ doz. $6.00
White Mountain.....₱ doz. $5.00
Bonanza Improved.....each $7.50
Dandy.....each $10.00
Eureka Improved.....each $20.00
New Century.....each $20.00
Ranger.....each $30.00

Livingston Nail Co.:
Daisy ..... ℔ doz. $4.00
Little Star ..... ℔ doz. $5.00
Rocking Table ..... ℔ doz. $6.20
Reading Hardware Co.:
Advance ..... ℔ doz. $4.00
Baldwin ..... ℔ doz. $4.00
Reading 72 ..... ℔ doz. $3.25
Reading 78 ..... ℔ doz. $6.25

Orange—
Goodell Co., Success ..... each $20.00

Potato—
Saratoga ..... ℔ doz. $7.00
White Mountain ..... ℔ doz. $6.00

Picks and Mattocks—
(List Jan., 1908.)
List ..... 75&10%
Cronk's Handled Garden Mattock, ℔ doz., $3.00 ..... 33⅓%

Pinking Irons—
See *Irons, Pinking.*

Pins, Escutcheon—
Brass ..... 50@50&10%
Iron, list Nov. 11, '85 ..60@60&10%

Pipe, Cast Iron Soil—
Eastern Prices:
Standard, 2-6 in 68½%
Extra Heavy, 2-6 in. 7½%
Fittings, Standard and Heavy 81¼%
} Extra, 10 & 10&5%

Pipe, Merchant—
Carloads to Consumers:

	Steel. Blk.	Steel. Galv.	Iron. Blk.	Iron. Galv.
	%	%	%	%
⅛ and ¼ in.	66	50	61	..
⅜ in.	68	54	66	52
½ in.	70	58	68	56
¾ to 6 in.	74	64	72	62
7 to 12 in.	71	56	69	54

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First-class 87½
Second-class 90%

Pipe, Stove—

	Per 100 joints. C. L.	L. C. L.
Edwards' Nested:		
5 in., Standard Blue	$6.25	$7.25
6 in., Standard Blue	6.75	7.75
7 in., Standard Blue	7.75	8.75
5 in., Royal Blue	7.00	8.00
6 in., Royal Blue	7.50	8.50
7 in., Royal Blue	8.50	9.50
Wheeling Corrugating Co.'s Nested:		
5 in., Uniform Color	$5.90	$6.90
6 in., Uniform Color	6.40	7.40
7 in., Uniform Color	7.40	8.40

Planes and Plane Irons—
Wood Planes—
Bench, first qual ..... 30@30&10%
Bench, second qual ..... 40@40&10%
Molding ..... 25@25&10%
Chapin-Stephens Co.:
Bench, First Quality 30%
Bench, Second Quality 40%
Molding and Miscellaneous 25%
Toy and German 30%
Union 60%

Iron Planes—
Chaplin's Iron Planes 60%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list Dec. 12, '06 ..... 25%
Buck Bros. 30
Chapin-Stephens Co. 25%
Union 50
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—
Kohler's Eclipse ..... ℔ doz. $7.50

Plates—
Felloe ..... *lb* .3¾@4¢
Avery Stamping Co.:
Standard Wrot, Steel Felloe Plates in 100 lb kegs, per 100 lb, ¾-in. to 1⅛-in., $4.00 net; 1¼-in. to 2-in., inclusive, $3.75 net.

Steel Pipe Hook—
Never-Break ..... 75&10%

Pliers and Nippers—
Button Pliers ....75&5@75&10&5%
Gas Burners, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45, $1.50.
Gas pipe.. 7 8 10 12-in.
$2.00 $2.25 $2.75 $3.50
Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button 80%
Improved Button ..... 75&10%
Cronk's 60%
No. 80 Linemen's 50%
Stub's Pattern 45%
Combination and others 33⅓%
Elmore Tool Mfg. Co.:
Gas Pliers 70%
Wire and Cutting Pliers 75%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&5@40&10&5%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels ..... 30@30&10%
Chapin's Imp. Brass Cor. ..40@40&10%
Pocket Levels ..... 30@30&10%
Extension Sights ..... 30@30&10%
Machinists' Levels ..... 40@40&10%
Disston's Plumbs and Levels ....60&10%
Disston's Pocket Levels ..... 60&10%
Stanley's Dulex 35%
Woods' Extension 33⅓%

Points, Glaziers'—
Bulk and 1-lb. papers .... *lb.* 9 ¢
½-lb. papers ..... *lb.* 9½¢
¼-lb. papers ..... *lb.* 10 ¢

Police Goods—
Manufacturers' Lists ..25@25&5%
Tower's 25%

Polish—Metal, Etc—
Ladd Co.:
Putzade Liquid, ℔ gro., ⅛ pts., $12.00; 1 pts., $20.00; 1 qts., $40.00; ℔ doz. ⅛ gals. $6.35; 1 gals., $12.00.
Prestoline Liquid, No. 1 (½ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $9.00..40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro. $4.50; ½ lb boxes, ℔ doz. $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ¼ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can ....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $4.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50

Window Polish—
Benj. P. Forbes:
Glasbright, No. 2, gal pails, ℔ doz., $24.00; each, $2.50; 1 lb cans, each ..... 75¢
Glasbright Powder, bbls., ℔ lb..20¢

Poppers, Corn—
1 qt. Square..doz.$0.80; gro.$8.75
1 qt. Round..doz.$0.90; gro.$10.00
1½ qt. Square.doz.$1.20; gro.$12.00
2 qt. Square..doz.$1.50; gro.$15.00

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Posts, Steel—
Steel Fence Posts, each, 6 ft., 46¢; 6½ ft., 48¢; 7 ft., 50¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—
See *Parers, Potato.*

Pots, Glue—
Enameled 40%
Tinned ..... 50&10%

Powder—
Black Sporting:
Kegs (25 lb.)..$5.00@5.50
Half Kegs (12½ lb.), $2.75@3.00
Quarter Kegs (6¼ lb.), $1.50@1.65
Canisters, pounds... .25
Canisters, ½ pounds. .15
Canisters, ¼ pounds. .12
} Discount to the trade, 10%.
NOTE.—Prices vary according to territory.
King's Semi-Smokeless:
Keg (25 lb bulk) $6.50
Half Keg (12½ lb bulk) $3.50
Quarter Keg (6¼ lb bulk) $1.90
Case 24 (1 lb cans bulk) $8.50
Half case (1 lb cans bulk) $4.50
King's Smokeless: Shot Gun, Rifle.
Keg (25 lb bulk) $12.00 $15.00
Half Keg (12½ lb bulk).. 6.25 7.75
Quarter Keg (6¼ lb bulk) 3.25 4.00
Case 24 (1 lb cans bulk).. 14.00 17.00
Half case 12 (1 lb c. bk).. 7.25 8.75

Presses—
Fruit, Wine and Jelly—
Enterprise Mfg. Co. ..... 20@25%

Seal Presses—
Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears—
See *Shears.*

Pullers, Nail, Etc.—
Cyclops 50%
Elmore Tool Mfg. Co.:
Drop Forged Tack Pullers 10%
Nail Pullers 40%
Miller's Falls, No. 3, ℔ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
The Scranton Co. Case Lots:
No. 2B (large) $5.50
No. 3B (small) $5.00
Smith & Hemenway Co.:
Diamond B 70%
Giant 50%
Staple Pullers, Utica and Davison 60%
Taylor Mfg. Co., Sampson Tack, ℔ doz. $0.40

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz	$0.30	.45	.60	1.05
Hay Fork, Swivel or Solid Eye, doz., 4 in., $1.25; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz	$0.65	.85	1.20	
Inch	1¼	1½	1¾	2
Screw, doz	$0.16	.19	.23	.30
Inch	1¾	2	2¼	2½
Side, doz	$0.25	.40	.55	.60
Inch	1½	1¾	2	2½

Sash Pulleys—
Common Frame; Square or Round End, per doz., 1¾ and 2 in ..... 17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in ....20@21¢
Acme, No. 35..1¾ in., 19¢; 2 in., 20½¢
American Pulley Co.:
Wrought Steel American Plain Axle ..... 50&10%
Wrought Steel, Eagle, ℔ doz., 1¾ in., 17¢; 2 in., 20¢; 2¼ in. ..... 27¢
Top Notch, Electrically Welded, Nos. 3 and 4, ℔ doz. ..... 19¢
Common Sense ..... ℔ doz. 20¢
Merit ℔ doz., 2¼ in. ..... 37¢
Fox-All-Steel, Nos. 3 and 7, 2 in.. ℔ doz. 50%
Grand Rapids All Steel Noiseless..50%
Niagara, No. 25, 1¾ in., 19¢; 2 in., 20½¢
No. 26, Troy..1¾ in., 14½¢; 2 in., 16½¢
Star, No. 26....1¾ in., 19¢; 2 in., 20½¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout .....75&10&5@80
Wood Pumps, Tubing, &c 50%
Barnes Dbl. Acting (low list) 50%
Barnes Pitcher Spout 80%
Contractors' Rubber Diaphragm, No. 2, B. & L. Block Co. $16.00
Daisy Spray Pump ..... ℔ doz. $6.50
Flint & Walling's Fast Mail Hand (low list) ..... 50&5%
Flint & Walling's Tight Top (low list) ..... 50&5%
Flint & Walling's Tight Top Pitcher 80%
National Specialty Mfg. Co., Measuring, Nos. 2, $6.00; 3, $5.50 ..... 30%
Myers' Pumps (low list) .....
Myers' Power Pumps .....
Myers' Spray Pumps ..... } 50
Pump Leathers—
Plunger and Valve Leathers—Per gro.:

No.	1	2	3	4
	$5.00	6.00	7.00	8.00

Cup Leathers—Per 100:

Inch	2½	3	3½	4
	$5.00	7.00	9.00	12.00

} 30@30&5%

Punches—
Saddlers' or Drive, good, doz. .50@75¢
Spring, single tube, good quality $1.75
Revolving (4 tubes)....doz.$3.50
Bemis & Call Co.'s Cast St'l Drive.50%
Elmore Tool Mfg. Co.:
Machinists' Center 40%
Tinners': Solid, 50%; Prick 50%
Merrill's Nos. 1AA, 1A, 1B, 1C, 1D, $15 00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 55&10%
Tinners' Hollow, P., S. & W. Co..40%
Tinners' Solid, P., S. & W. Co.. ℔ doz., $1.44 ..... 40&10%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢ 30%
Cronk's:
Double Braced Steel Rail..℔ ft. 2¾¢
O. N. T. Rail ..... 2¾¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ℔ 100 ft. $3.45
O. N. T., ℔ 100 ft., 1 in., $3.12½; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ℔ 100 ft., $7.50; 1¼ x 3-16 in., $8.75 ..... 55&7½%
Trolley, No. 301, ℔ ft. ..... 9¢
McKinney's:
Hinged Hanger Track, ℔ ft., 11¢ 60&5%
1 x 3-16 Track ..... 55&7½%
Myers' Stayon Track ..... 60&5%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail..60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 50 ..... 60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—
NOTE.—Many goods are sold at net prices.
American Fork & Hoe Co.:
Lawn, ℔ doz., No. 24, $2.50; No. 20 ..... $2.25
Cronk's:
Steel Garden: Champion, ℔ doz., 12-tooth, $3.75; 14-tooth, $4.00; 16-tooth, $4.25; Ideal, ℔ doz., 12-tooth, $3.00; 14-tooth, $3.30; 16-tooth, $3.60.
Victor, 12-tooth, $2.25; 14-tooth, $2.50; 16-tooth, $2.75.
Queen City Lawn, ℔ doz., 20 teeth, $2.85; 24, $3.00 ..... net
Anticlog Lawn, ℔ doz. $4.00
Malleable Garden ..... 70&10%
Ideal Steel Garden, ℔ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00 ..... 80%
Kohler's:
Jumbo Lawn, 36-tooth ....℔ doz. $5.00
Lawn Queen, 20-tooth ....℔ doz. $2.85
Lawn Queen, 24-tooth ....℔ doz. $3.00
Paragon, 20-tooth ..... ℔ doz. $2.65
Paragon, 24-tooth ..... ℔ doz. $2.75
Steel Garden, 14-tooth ....℔ doz. $2.10
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00

Rasps, Horse—
Disston's 75%
Heller Bros.' ..... 70&5@70&10&5%
Liverlight Bros.' Gold Medal.70&10@75%
McCaffrey's American Standard ..... 60&10&5%
New Nicholson ..... 70&10@75%
See also Files.

Razors—
John Engstrom Swedish 65%
Sharp Shaver 60%
Fox Razors, ℔ doz., No. 42, $24.00; No. 44, $20.00; No. 82, Platina, $36.00. } Dis. 50%

Reels, Fishing—
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo 20%
Aluminum, German Silv., Bronze..25%
1240 N, 124 N 20%
3004 N, 06 N, 6 RM, G 8 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P., 33⅓%; 2904 PN., 33⅓%; 0924 N., 33⅓%; 92084 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%; 986 PN, 2904 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*
Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel..50&10%
Solid Brass or Bronze Metal.40%

Revolvers—
Single Action ..... *$5¢@$1.00*
Double Action, except 44 cal.$2.00
Double Action, 44 caliber...$2.00
Automatic *$4.00*
Hammerless *$4.50*

Riddles, Hardware Grade
16 in.....per doz.$2.50@$2.75
17 in.....per doz.$2.75@$3.00
18 in.....per doz.$3.00@$3.25

Rings and Ringers—
Bull Rings—

	1	1¼	3 inch.
Steel	$0.70	0 75	0.80 doz.
Copper	$1.10	1.25	1.65 doz.

Hog Rings and Ringers—
Hill's Rings, per gro. boxes, $4.60@$4.75; per doz. boxes, 40@45¢
Hill's Ringers, Gray Iron, doz., 55@65¢
Hill's Ringers, Malleable Iron, doz.85@95¢
Blair's Rings..per gro.$5.50@$6.00
Blair's Ringers..per doz.65@70¢

Rivets—
Copper Rivets and Burrs....50%
Tinners' and Miscellaneous Rivets ..... 80@80&10%

Bifurcated and Tubular—
Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 50 count, 23@25¢; Tin boxes, 100 count, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—
Cronk's Stay, No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60 ..... $0.75
Lane's Stay 40%
Rine's Shards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%

Rope—
Manila, 7-16 in. diam. and larger: Pure ..... *lb.* 9¢
Sisal, 7-16 in. diam. and larger: Pure ..... *lb.* 7¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Pure ..... *lb.* 7½@7¾¢
Sisal, Tarred, Medium Lath Yarn: Pure ..... *lb.* 6½@6¾¢
Cotton Rope: Best, ¼-in. and larger..16½@18¢
Medium, ¼-in. and larger.15@16¢
Common, ¼-in. and larger..7½¢
In coils, ½¢ advance.
Jute Rope: Thread, No. 1, ¼-in. and up, lb. ..... 5½¢
Thread, No. 2, ¼-in. and up, lb. ..... 5¢

Wire Rope—
Galvanized ..... 37½&2½%
Plain ..... 45&2½%

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal 20%

Rules
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory ..... 25@25&10%
Miscellaneous ..... 50@50&10%
Stephens' Combination 55%
Stationers' ..... 50@50&10%
Keuffel & Esser Co.:
Folding, Wood ..... 35&10%
Folding, Steel ..... 33⅓&10%
Lufkin's Steel ..... 50&10%
Lufkin's Lumber ..... 50&10%
Unson Nut Co.:
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
- Circular 45%
- Band ..... 50@50&10%
- Butcher Saws 50%
- Cross Cuts 35%
- One-Man Cross Cut 40%
- Narrow Cross Cut 50%
- Hand, Rip and Panel ..... 35&5%
- Miter Box and Compass 40%
- Mulay, Mill and Drag 45%
- Wood Saws ..... 40&10%

Chapin-Stephens Co.:
- Turning Saws and Frames 30@30&10%

Diamond Saw & Stamping Works:
- Sterling Kitchen Saws ..... 30&10&10%

Disston's:
- Circular, Solid and Ins'ted Tooth 50%
- Band, 2 to 18 in. wide 60
- Band, ¾ to 1¾ 60
- Crosscuts 45%
- Narrow Crosscuts 50%
- Mulay, Mill and Drag 50
- Framed Woodsaws 25%
- Woodsaw Blades 25%
- Woodsaw Rods, Tinned 15%
- Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
- Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
- Compass, Key Hole, &c 25%
- Butcher Saws and Blades 30%

C. E. Jennings & Co.'s:
- Back Saws 16⅔%
- Butcher Saws ..... 25&7½%
- Compass and Key Hole Saws, 33⅓&7½%
- Framed Wood Saws ..... 25&7½%
- Hand Saws 12½%
- Wood Saw Blades ..... 33⅓&7½%

Millers Falls:
- Butcher Saws ..... 15&10%
- Star Saw Blades ..... 15&10%

Massachusetts Saw Works:
- Victor Kitchen Saws ..... 40&10&50%
- Butcher Saws Blades ..... 35@40%

Peace & Richardson's Hand Saws 30%

Simonds':
- Circular Saws 45%
- Crescent Ground Cross Cut Saws 30%
- One-Man Cross Cuts ..... 40&10%
- Gang Mill, Mulay and Drag Saws 45%
- Band Saws 50%
- Back Saws ..... 25@25&7½%
- Butcher Saws ..... 35@35&7½%
- Hand Saws ..... 25@25&7½%
- Hand Saws, Bay State Brand 45%
- Compass, Key Hole, &c. 25@25&7½%
- Wood Saws ..... 40&7½%

Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saw Blades and Frames—
Atkins' Hack Saw Blades A A A 25%

Disston's:
- Concave Blades 25%
- Keystone Blades 35%
- Hack Saw Frames 30%

Simonds, 25%; The Best, 35%; Culley 35%

C. E. Jennings & Co.'s:
- Hack Saw Frames, Nos. 175, 180 ..... 40&7½%
- Hack Saws, Nos. 175, 180, complete, 40&7½%

Goodell's Hack Saw Blades ..... 40&10%

Griffin's Hack Saw Frames 35&5&10%

Griffin's Hack Saw Blades ..... 35&5&10%

Star Hack Saws and Blades ..... 15&10%

Sterling Hack Saw Blades 30&10&5%

Sterling Hack Saw Frames 30&10&10%

Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 10%

Victor Hack Saw Blades 20%

Victor Hack Saw Frames 40%

Whitaker Mfg. Co.:
- National Hand Blades, Hand Frames, Power Blades 40%

Scroll—
Barnes, No. 7, $15 ..... 25%

Barnes' Scroll Saw Blades 40%

Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20 ..... 20%

Lester, complete, $10.00 ..... 15&10%

Rogers, complete, $3.50 and $4.00 ... 15&10%

Scales—
Union Platform, Plain $2.10@2.20

Union Platform, Stpd. $2.20@2.30

Chatillon's:
- Eureka 25%
- Favorite 40%
- Grocers' Trip Scales 50%

The Standard Portables 40%

The Standard R. R. and Wag-

Scrapers—
Box, 1 Handle ..... doz. $1.85@2.10

Box, 2 Handle ..... doz. $2.35@2.50

Ship ... Light, $2.00; Heavy, $2.50

Chapin-Stephens Co., Box 30@30&10%

Richards Mfg. Co., Foot 60%

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1⅛, $3.00@3.25; 1¼, $3.50@3.75

Bench, Wood ..... 20@20&10%

Hand, Wood ... 70&10@70&10&10%

Chapin-Stephens Co., Hand ..... 70@70&10&2½%

Coach, Lag and Hand Rail—
Lag, Cone Point ..... 80&5%

Coach, Gimlet Point 80%

Hand Rail ..... 70&10@75%

Jack Screws—
Standard List ..... 70&10@75%

Millers Falls ..... 50&10&10%

Swett Iron Works ..... 70@75%

Machine—
Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, 50@50&10%

Fillister Head ..... 40@40&10%

Rolled Thread, F. H. or R. H., Iron ..... 75&10%

F. H. or R. H., Brass, Nos. 8 to 14 ..... 65&10%

Set and Cap—
Set (Iron) ..... 75&10&7½%

Set (Steel), net advance over Iron 25%

Sq. Hd. Cap ..... 70&10&7½%

Hex. Hd. Cap ..... 70&10&7½%

Rd. Hd. Cap ..... 50&7½%

Fillister Hd. Cap ..... 60&7½%

Wood—
List July 23, 1903.

Flat Head, Iron ..... 87½&65@.. %

Round Head, Iron ..... 85&65@.. %

Flat Head, Brass ..... 80&65@.. %

Round Head, Brass .. 77½&65@.. %

Flat Head, Bronze .... 75&65@.. %

Round Head, Bronze. 72½&65@.. %

Drive Screws ..... 87½&65@.. %

Scroll Saws—
See *Saws, Scroll.*

Scythes— *Per doz.*
Plain Grass, Cutting Edge Polished ..... $6.25@$6.50

Clipper, Bronzed Web. $6.50@$6.75

Solid Steel, Web and Backs Polished ..... $7.00@$7.25

Bush, Weed and Bramble, Painted ..... $6.50@$6.75

Grain, Painted, Cutting Edge Polished ..... $8.25@$8.50

Clipper Grain, Bronze Web. $8.50@$8.75

Seeders, Raisin—
Enterprise ..... 25@30%

Sets— Awl and Tool—
Fray's Tool Handles, Nos. 1, $12; 2, $16; 3, $12 50

Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18 ..20&10%

Garden Tool Sets—
American Fork & Hoe Co.:
- Rake, Shovel and Hoe, ₱ doz. sets, No. 3 P F $7.25

Sets, Nail—
Octagon ..... gro. $3.50@3.75

Buck Bros. 37½

Elmore Tool Mfg. Co. 30

Mayhew's ..... ₱ gro. $9.00

Snell's Corrugated, Cup Pt. ..... 40&10%

Snell's Knurled, Cup Pt. ..... 40&10%

Victor Knurled, Cup Pt. ... ₱ gro. $7.50

Rivet—
Regular list ..... 75@75&10%

Saw—
Atkin's:
- Criterion 40%
- Adjustable 40%

Disston's Star, Monarch and Triumph 30%

Morrill's No. 1 ..... $15.00

Nos. 3 and 4, Cross Cut $20.60

No. 5, Mill $30.00

Nos. 10, 11, 95 ..... $15.60

No. 1 Old Style $10.00

Special $16.25

Giant Royal Cross Cut ..... ₱ doz. $7.50

Royal, Hand ..... ₱ doz. $4.50

Taintor Positive ..... ₱ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30 ..... ₱ doz., net, $24.00

Smith & Hemenway Co.'s 75%

Sharpeners, Knife—
Pike Mfg. Co.:
- Fast Cut Pocket Knife Hones, ₱ doz. $1.50
- Mounted Kitchen Sand Stone, ₱ doz. $1.50
- Natural Grit Carving Knife Hones, ₱ doz. $3.00
- Quick Cut Emery Carving Knife Hones, ₱ doz. $1.50
- Quick Edge Pocket Knife Hones, ₱ doz. $2.50

} 50&10%

Skate—
Smith & Hemenway Co., Eureka .. 50%

Shaves, Spoke—
Iron ..... doz. $1.25

Wood ..... doz. $2.00

Bailey's (Stanley R. & L. Co.) 45%

Chapin-Stephens Co. ..... 30&10%

Goodell's, ₱ doz. $9.00 ..... 15&10%

Shears—

	7	8	9 in.
Cast Iron			
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:

Best quality Jap ..... 70&10&5%

Best Quality Nickel .. 60&10&5%

Tailors' Shears ..... 40@40&10%

Acme Cast Shears ..... 40@40&5%

Heinisch's Tailor's Shears 10%

National Cutlery Co.'s Nickel Plated, 60&10%; Japan Handles ..... 70&10%

Columbian Cutlery Co.:
- Sheep, 1900 list ..... 30&10&5%
- Grass ..... 50&10%
- Horse or Mule ..... 50&10%

J. Wiss & Sons Co.:
- Best Quality Jap'd ..... 60&10%
- Best Quality Nickeled ..... 50&10%
- Tailors' 25%

Tinners' Snips—
Steel Blades ..... 20&5@20&10%

Steel Laid Blades ..... 50&10%

Acme Cast Snips ..... 40@45&5%

Forged Handles, Steel Blades, Berlin 50%

Heinisch's Snips 40%

Jennings & Griffin Mfg. Co.'s 6½ to 10 in. ..... 33⅓&7½%

National Cutlery Co.'s Forged Steel 50%

Niagara Snips 40%

P. S. & W. Forged Handles, 25%; W. R. W. 50%

J. Wiss & Sons Co.:
- Wiss Forged Steel 25%

Pruning Shears—
Cronk's Hand Shears 33⅓%

Cronk's Wood Handle Shears 33⅓%

Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00 ..... 25%

Disston's Pruning Hook only, ₱ doz., $12.00 ..... 25%

J. T. Henry Mfg. Co.:
- Pruning Shears, all grades 40%

P. S. & W. Co. ..... 40&10%

Columbian Cutlery Co.:
- Hedge, Wilcut Brand ..... 60&10%
- Lawn and Border, Wilcut Brand, 60&10%

Sheaves—Sliding Door—
Reading 40%

R. & E. list 15%

Sliding Shutter—
Reading list 40%

R. & E. list 15%

Shells—Shells, Empty—
Brass Shells, Empty:
- Climax, 10 and 12 gauge ..... 60&5%
- Club, Rival, 65&5%; First Quality, 60&5%

Paper Shells, Empty:
- New Rapid, 10, 12, 16 and 20 gauge, 25&10%
- Climax, 10 and 12 gauge; Acme and Magic, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade ..... 25&5%
- Union, League, 10 and 12 gauge, Rival Grade 25%
- New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge 20%
- Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade .. 20%

Shells, Loaded—
Loaded with Black Powder .. 40%

Loaded with Smokeless Powder, medium grade ..... 40&5%

Loaded with Smokeless Powder, high grade ..... 40&10&10%

Union Metallic Cartridge Co.:
- New Club, Black Powders 40%
- Nitro Club, Smokeless Powders 40&5%
- Arrow, Smokeless Powders 40&10&10%

Winchester:
- Smokeless Repeater Grade ..... 40&5%
- Smokeless Leader Grade ... 40&10&10%
- Black Powder 40%

Shingles, Metal— Per Sq.

Edwards Mfg. Co.:	Painted.	Galv.
14 x 20	$4.25	$6.00
10 x 14	4.50	6.25
7 x 10	4.75	6.50

Wheeling Corrugating Co.:

Dixie, 14 x 20 in.	$4.05	$5.05
Dixie, 10 x 14 in.	4.25	5.45
Dixie, 7 x 10 in.	5.25	6.70

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:

Iron ..... per keg. $4.10

Steel ..... per keg. $3.85

Burden's, all sizes ..... ₱ keg $3.90

Shot—
25-lb. bag.

Drop, up to B $1.80

Drop, B and larger 2.05

Buck 2.05

Chilled 2.05

Dust 2.30

Shovels and Spades—
Association List .. 40&7½@40&10%

Avery Stamping Co. 40%

Snow Shovels—
Long Handle ..... $2.50@$2.75

Wood and Mall, D Handle, $2.65@$2.90

Sieves and Sifters—
Hunter's Imitation, gro $9.50

Hunter's Genuine, per gro .. $12.00

Sifters, Ash—
Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each, $3.25; ₱ doz. $39.00

Sieves, Seamless Metallic
Per dozen.

Mesh	*1½*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.

Mesh 18, Nested .... doz. $0.90@0.95

Mesh 20, Nested .... doz. $1.00@1.05

Mesh 24, Nested .... doz. $1.30@1.40

Sinks, Cast Iron—
Painted, Standard list:

12 x 12 to 22 x 36 in. 60%

20 x 24 to 24 x 50 in. 50%

24 x 60 to 24 x 120 in. 30%

Barnes' low list 60%

NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron ..... 70@75&10%

Steel ..... 40@45%

Slates, School—
Factory Shipments.

"D" Slates ..... 50@50&10%

Eureka, Unexcelled Noiseless .. 60&7 tens.

Victor A, Noiseless .60&4 tens 45%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... 40@40&10%

Covert Mfg. Co.:
- Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%
- High Grade, 40%; Trojan 40%
- Jockey 25%

Snaths—
Grass Scythe ..... 50@50&5%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality ..... 50&10@60&5%

Cheap ..... 60@60&10%

International Silver Co:
- 1847 Rogers Bros. ..... 40&10%
- Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
- Anchor, Rogers Brand 60%
- Wm. Rogers & Son ..... 60&10%

Miscellaneous
German Silver ..... 60@60&5%

Tinned Iron—
Teas ..... per gro. 50@55¢

Tables ..... per gro. $0.90@$1.00

Atlas Mfg. Co.:
- Tea Spoons, ₱ gro. ..... 50¢@55¢
- Table Spoons, ₱ gro. ..... $0.90@$1.00

Springs— Door—
Bardsley's Spring and Check 40%

Chicago (Coil) ..... 40&10%

Gem (Coil) 20%

Pullman Door and Gate 10%

Reliance (Coil) ..... 40&10%

Star (Coil) 35%

Torrey's Rod, 39 in. ..... ₱ doz. $1.00

Carriage, Wagon, &c.—
1¼ in. and Wider: Per 100 lb.

Black ..... $4.75@$5.00

Half Bright ..... $4.75@$5.00

Bright ..... $5.25@$5.50

Painted Seat Springs:

1½ x 2 x 26 .... per pair. 45@47¢

1½ x 3 x 28 .... per pair. 68@71¢

Sprinklers, Lawn—
American Foundry & Mfg. Co.:
- Cactus, 65%; Japanese, 70%; National, ₱ doz. $12.00

Enterprise ..... 25@30%

Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $20 ..... 30%

Squares—
Nickel plated .. (List Jan. 5, 1900.
Steel and Iron . (80&80&10%

Rosewood Hdl. Try Square and T-Bevels ..... 60&10&10@70%

Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%

Disston's Try Squares and Bevels, Rosewood Handle, 60 & 10%; Iron Stock and Bevel 15%

Squeezers, Lemon
Wood, Porcelain Lined:

Cheap ..... doz. $1.00

Good Grade ..... doz. $1.25

Tinned Iron ..... doz. $0.75@1.00

Iron, Porcelain Lined ... doz. $1.75

Victor, ₱ gro. $9.00

Staples—
Barbed Blind ..... 85&5@85&10%

Electricians' ..... 80&10&10@85%

Fence Staples, Polished, $2.05:

Galvanized $2.35

Poultry Netting Staples ..... per lb. 3¼@3½¢

Steels, Butchers'—
Dick's 30%

Foster Bros. 30%

Steelyards— .... 30@30&10%

Stocks and Dies—
Blacksmiths' ..... 50@50&10%

Curtis Rev'ble Ratchet Die Stock .. 25%

Derby Screw Plates 25%

Green River 25%

Lightning Screw Plate 25%

Little Giant 25%

Reece's New Screw Plate 25%

Stoners, Cherry—
Enterprise ..... 25@36%

Stones, Axe—
Pike Mfg. Co., Axe Stones (all kinds) 33⅓%

Glass Cutters' Stones—
Pike Mfg. Co., Glass Cutters' Stones and Supplies 40%

Stones, Oil, &c.—
Pike Mfg. Co., 1907 list: ₱ lb.
- Arkansas St, No. 1, 3 to 5½ in. $2.80
- Arkansas St, No. 1, 5½ to 8 in. $3.50
- Arkansas Slips No. 1 ..... $1.00
- Lily White Washita, 4 to 8 in. 60¢
- Rosy Red Washita, 4 to 8 in. 60¢
- Washita St., Extra, 4 to 8 in. 50¢
- Washita St., No. 1, 4 to 8 in. 40¢
- Washita St., No. 2, 4 to 8 in. 25¢
- Lily White Slips ..... 90¢
- Rosy Red Slips ..... 90¢
- Washita Slips, Extra ..... 80¢
- Washita Slips, No. 1 ..... 70¢
- Washita Slips, No. 2 ..... 40¢
- India Oil Stones (entire list) ... 33⅓%
- Quickcut Emery and Corundum Oil Stone, Double Grit 40%
- Quickcut Emery and Corundum Axe Stone, Double Grit 33⅓%
- Quickcut Emery Rubbing Bricks .. 40%
- Hindostan No. 1, R'g'lar. ₱ lb. 8¢
- Hindostan No. 1, Small .. ₱ lb. 10¢
- Turkey Oil Stones, Extra, 5 to 8 in. ..... ₱ lb. 80¢
- Queer Creek Stones, 4 to 8 in. 20¢
- Queer Creek Slips ..... 10¢
- Sand Stone ..... 6¢

} 33⅓%

} 33⅓%

Scythe Stones—

Pike Mfg. Co., 1907 list:
Black Diamond S. S. ℔ gro. $12.00
Lamoille S. S. ℔ gro. $11.00
White Mountain S. S. ℔ gro. $9.50
Green Mountain S. S. ℔ gro. $7.00
Extra Indian Pond S. S. ℔ gro. $8.00
No. 1 Indian Pond S. S. ℔ gro. $7.50
No. 2 Indian Pond S. S. ℔ gro. $5.00
Leader Red End S. S. ℔ gro. $5.00
Quick Cut Emery... ℔ gro. $10.00
Pure Corundum..... ℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat. $11.00
Emery Scythe Rifles, 4 Coat. $13.20
} 33⅓%
Balance of 1907 list 33⅓%.
Lectro (Artificial), ℔ gro., $12.00 33⅓%
$12.00 ..... 33⅓%
Lightning (Artificial), ℔ gro., $18.00 ..... 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers..... ℔ gro. $9.00

Stops— Bench—

Millers Falls..... 15&10%
Morrill's, ℔ doz., No. 1, $10.00.... 50%
Morrill's, No. 2, $12.50..... 50%

Door—

Chapin-Stephens Co..... 50@50&10%

Plane—

Chapin-Stevens Co..... 20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points..doz.55¢
All Steel Socket...doz.$2.00@2.25
Excelsior Stretcher and Tack Hammer Combined, ℔ doz., $6.00....20%

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses..... 25@25&7½%
National Specialty Co., list Jan. 1, 1902 ..... 30&5%
P., S. & W. Co..... 40&10&5%

Sweepers, Carpet—

Goshen Sweeper Co.:	Per doz.
Gilt Edge	$27.00
Superfine	26.00
Majestic	24.00
Select, Nickeled	22.00
National Sweeper Co.:	
National Queen, Nickeled	$27.00
Martha Washington, Nickeled	25.00
Monarch, Japanned	20.00
Perpetual, Japanned	18.00
Streator Metal Stamping Co.:	
Model E, Sanitaire	$25.00
Eureka	15.00
Streator Majestic, Nickeled	24.00
Streator Conqueror, Japanned	22.00

NOTE.—Leading Manufacturers give the following rebates from list prices: 50c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks.90&25@—%
American Cut Tacks..90&25@—%
Swedes' Cut Tacks.L..90&30@—%
Swedes' Upholsterers'.90&35@—%
Gimp Tacks.....90&35@—%
Lace Tacks.....90&35@—%
Trimmers' Tacks.....90&30@—%
Looking Glass Tacks.....65@—%
Bill Posters' and Railroad Tacks, 90&40@—%
Hungarian Nails.....80@—%
Finishing Nails.....70@—%
Trunk and Clout Nails.75&5@—%

NOTE.—The above prices are for Straight Weights.

Miscellaneous—

Double Pointed Tacks, 90&6 tens@—%
See also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:

Gal.	Gasoline	Oil
30	$2.75	$3.00
60	$3.50	$4.00
110	$5.00	$5.75

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel .....33⅓&5%
Chesterman's .....25@35&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkins:
Asses' Skin..... 40&10@50%
Metallic ..... 30@30&5%
Patent Bend, Leather...25&5@25&10%
Pocket ..... 40@40&5%
Steel ..... 33⅓@35%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 25%
Chesterman's Steel, No. 1038L, etc. 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lb.....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.....30@35%

Ties, Bale—Steel Wire—

Single Loop.....82½&10%
Monitor, Cross Head, &c.70&5&2½%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White..... 20@20&5%

Haying—

Myers' Hay Tools..... 50%

Ice Tools—

Gifford-Wood Co..... 15%

Miniature—

Smith & Hemenway Co.'s, Davidson, ℔ doz., Nickel Plated, $1.50; Gold Plated..... $2.00

Saw—

Atkins' Cross Cut Saw Tools....35&5%
Simond's Improved..... 33⅓%
Simonds' Crescent..... 30%

Ship—

L. & I. J. White..... 25%

Torches—

Hammers, Engine, ℔ doz..... $4.50

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro.$13.00@13.50

Game—

Imitation Oneida.....75@10%
Newhouse ..... 50&5%
Hawley & Norton..... 65&10%
Victor ..... 75@75&10%
Oneida Community Jump..... 70&5%
Stop Thief..... 60%
Tree Trap..... 60%
Hector ..... 75@75&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine), ℔ doz.:

	Crate lots.	Small lots.
No. 1, Rat.....	$11.50	$14.50
No. 3, Rat.....	$5.75	$6.50
No. 3½, Rat.....	$4.70	$5.25
No. 5, Mouse.....	$2.25	$3.00

Animal Trap Co.:
Out o' Sight, Mouse, ℔ doz.....$0.60
Out o' Sight, Rat, ℔ doz..... 1.20
Easy Set, Mouse, ℔ doz..... .35
Easy Set, Rat, ℔ doz..... .85
Out o' Sight Chockers, ℔ doz. holes ..... .12
Out o' Sight, Tin, 5-hole, ℔ doz. traps ..... .75

Trowels—

Disston Brick and Pointing..... 25%
Disston Plastering..... 20%
Disston "Standard Brand" and Garden Trowels..... 30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break, Forged Steel Garden Trowels, in bulk, net ℔ gro. $5.50
In 1 doz. boxes..... ℔ gro. $6.00
Woodrough & McParlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern..... 50&10%
Western Pattern..... 60&10%
Handy Trucks..... ℔ doz. $16.00
Grocery ..... ℔ doz $15.00
McKinney Trucks..... each, net $10.00
Model Stove Trucks..... ℔ doz $18.50

Tubs, Wash—

M'f'gr's list, price per gross.
No. 0 1 2 3
Galvanized.$67 $79 $89 $99 10&7½ &5&5%

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls.21@23¢
No. 12, ¼ and ½-lb. Balls.19@21¢
No. 18, ¼ and ½-lb. Balls.16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls.15@17¢
Chalk Line, Cotton ½-lb. Balls .....24@29¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....8½@19¢
Cotton Wrapping, 5 Balls to lb., according to quality..15½@19¢
American 2-Ply Hemp, ¼ and ½-lb. Balls.....12½@15¢
American 3-Ply Hemp, 1-lb Balls .....13½@16¢
India, 2-Ply Hemp, 1½-lb. Balls, Balls (Spring Twine)...7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7½@9¢
India 3-Ply Hemp, 1½-lb. Balls, 7@8½¢
2, 3, 4 and 5-Ply Jute, 1½-lb. Balls .....9@11¢
Mason Line, Linen, ½-lb. Bls.17¢
No. 26½ Mattress, ¼ and ½ lb. Balls, according to quality. 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box.....60@60&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable..... 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co., 40&5%; Slide 65%
Fisher & Norris Double Screw, net, each Nos. 2, $10.50; 3, $16.00; 4, $20.50; 5, $27.00; 6, $32.00.
Fulton Mach. & Vise Co.:
F. & R. Double Swivel Machinists' 40%
Star, Solid Jaw, Machinists'.....40%
Hollands':
Machinists' .....40@40&5%
Keystone .....65&5&70%
Lewis Tool Co.:
Adjustable Jaw..... 30%
Monarch, 50%; Solid Jaw..... 50%
Massey Vise Co.:
Clincher 40%
Parallel Bar..... 15%
Perfect, 15%; Lightning Grip..... 15%
Merrill's 25%
Millers Falls Oval Slide Pattern.60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's ..... 40@45%
Combination Pipe..... 55@60%
Prentiss ..... 20@25%
Rock Island..... 25%
Snediker's X. L..... 33⅓%
Stephens' 33⅓%

Saw Filers

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps..... 30%
Perfection Saw Clamps, ℔ doz....$4.50
Reading 60%

Wood Workers—

Fulton Mach. & Vise Co.:
F. & R. Double Swivel Coachman's 40%
Star Solid Jaw Woodworkers'....60%
Massey Vise Co.:
Lightning Grip, 15%; Perfect....15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Fulton Machine & Vise Co., Combination Pipe..... 70%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe..... 40%
Parker's Combination Pipe:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.
Rock Island Pipe..... 25%

Wads—*Price per M.*

B. E., 11 up.....60¢
B. E., 9 and 10.....70¢
B. E., 8.....80¢
B. E., 7.....80¢
P. E., 11 up.....$1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E., 11 and larger.$1.70@1.75
Ely's P. E., 12 to 20....$3.00@3.25

Dis. 15%

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled .....45&10%
Ground .....50&5%
Plain or Unground.....60%
Country Hollow Ware, per 100 lbs .....$2.75@$3.00
White Enameled Ware:
Maslin Kettles.....65&10%
Covered Wares:
Tinned and Turned.....35&10%
Enameled .....45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware.....33⅓%
El-an-ge .....60&10%
Iron Clad Ware..... 70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Stamping Co.:
Never-Break Spiders and Griddles ..... 65&10%
Steel Kettles, Maslins Scotch Bowls, Tin'd..... 60%
Steel Stew Pans, Stew Pots, etc., Porcelained 50%
Cleveland Stamping & Tool Co.:
Solid Steel Spiders and Griddles ..... 65&5%
Solid Steel Kettles..... 60&5%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

No.	℔ doz.
800—Brass King, Single Surface, Open Back	$2.80
862—White Hen, Spiral Grimp Glass	$3.35
964—Royal Blue Enamel, Single Surface, Ventilated Back	$3.35
172—Our Best, Single Zinc, Soap Drainer	$3.35
722—Soap Saver, Single Zinc, Iron Top	$3.35
100—Northern Queen, Single Zinc, Perforated, Open Back	$3.00
134—Universal, Single Zinc, Extra Family Size, Ventilated Back	$2.80
760—Banner Globe, Single Zinc, Ventilated Back	$2.25
57—Peerless, Double Zinc, Spring Protector	$3.70
56—Red Cross, Double Zinc, Swing Protector	$3.60
17—North Star, Solid Zinc, Swing Protector	$3.60
797—Jewel, Single Zinc, Pail Size.	$1.25

Washers—Leather, Axle—

Solid .....90@90&10%
Patent .....90@90&5%
Coil: ⅞ 1 1⅛ 1¼ inch. 9¢ 10¢ 11¢ 14¢ per box.

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.90 4.00 2.70 2.50 2.30
The above prices are based on $6.50 off list.
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Avery Stamping Co.:
Standard, in 200 ℔ kegs, $6.00 ℔ 100 ℔. disct.; in 100 ℔ kegs, add 10¢ net ℔ 100 ℔; in 5 or 10 ℔ boxes, add 50¢ net ℔ 100 ℔; in 1 ℔ boxes, add $1.00 net ℔ 100 ℔.

Cast Washers—

Over ½-inch, barrel lots, per lb. 1½@1¾¢

Wedges—

Oil Finish.....lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co..... 30&2%

Sash—

Per net ton.....$19.50@$21.00

Wheels, Corundum and Emery—

Pike Mfg. Co., Corundum, 65%; Emery 75%

Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Bright and Annealed:
6 to 9.....72&10&7½%
10 to 18.....72½&10&10%
19 to 26.....75&10&10&2½%
27 to 36.....77½&10&7½%
Galvanized:
6 to 9.....72½&10%
10 to 14.....72½&10&5%
15 to 16.....72½&10&10&5%
17 to 18.....72½%
19 to 26.....70&5&2½%
27 to 36.....65&10&10%
Coppered:
6 to 9.....65&10&10%
10 to 14.....70&10&5%
15 to 18.....65&10&10&10%
19 to 26.....70&5&2½%
27 to 36.....72½&10&2½%
Tinned:
6 to 18.....67&10&10%
Brass .....16¼¢ lb., base
Copper .....15½¢ lb., base
Cast Steel Wire.....50%

Spooled Wire—

Annealed and Tinned.75@75&10%
Brass and Copper....70@70&10%
Retailers' Assortments, per box, $1.90@$2.10
Wire Clothes Line, See Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Steel Wire Goods.....90&10%
Brass Wire Goods.....90&10%
Brass Cup and Shoulder Hooks, 85%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&10@80&10&5%
Screen Cloth, 12 Mesh, Per 100 sq. ft.; Painted, $1.35; Galvanized, $1.95; 14 Mesh, Bronze $6.50.
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.75
Nos. 4 and 5 Mesh.....$3.00
No. 6 Mesh.....$3.25
Nos. 7 and 8 Mesh.....$3.75

Wire, Barb—See Trade It...

Wrenches—

Agricultural ....80&10@80&10&5%
Alligator or Crocodile.70&10@75%
Baxter Pattern S Wrenches, 70&5@70&10%
Drop Forged S.....45@45&5%
Acme ..... 60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%.
Steel Handle Nut..... 50&5%
Combination Black..... 50&5%
Merrick Pattern..... 50&5%
Boardman's 40%
Coes' Genuine Knife Hdl...40&10&5&5%
Coes' Genuine Steel Hdl...40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer..... 40&10%
Eagle 70%
Gem Pocket..... 30%
Hercules 70%
W. & B. Machinist:
Case lots..... 50&10%
Less than case lots..... 50%
W. & B. Railroad Special:
Case lots..... 50%
Less than case lots..... 40&10&5%
Solid Handles, P., S. & W..50&10%; full cases..... 50&10&5%
Standard Nipple Mfg. Co.:
Duplex Chain..... 50%
Uwanta Wrench Co.:
Uwanta Special, Iron Handle.... 40&10&5%
Other Wrenches..... 50%
Vulcan and Agrippa Chain..... 50%
Whitaker Machinists'..... 50&10%
Wizard Adjustable Ratchet..... 50%

Fruit Jar—

Beni, P. Forbes, Triumph, ℔ gro., $7.50; per doz..... $0.90

Wrought Goods—

Staple Hooks, &c., list March 11, '02.....90@—%

Zinc—*(Cask lots at mill.)*

Sheet.....per 100 lb., $7.00